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* * * * * * * * * * * * * * * * STN  Columbus  * * * * * * * * * * * * * * * *

FILE 'HOME' ENTERED AT 10:46:48 ON 07 JUN 2007

=> file caplus

=> s (fructosyl(w)peptide(w)oxidase) and plant
           773 FRUCTOSYL
        371721 PEPTIDE
        122924 OXIDASE
             9 FRUCTOSYL(W)PEPTIDE(W)OXIDASE
        839934 PLANT
L1           1 (FRUCTOSYL(W)PEPTIDE(W)OXIDASE) AND PLANT

=> d cbib abs

L1   ANSWER 1 OF 1  CAPLUS  COPYRIGHT 2007 ACS on STN
2004:371095   Document No. 140:370808  Novel   ***fructosyl***
       ***peptide***     ***oxidase***   of Zingiberaceous   ***plant***   and
     analysis of fructosyl protein. Ebinuma, Hiroyuki (Daiichi Pure Chemicals
     Co., Ltd., Japan). PCT Int. Appl. WO 2004038034 A1 20040506, 27 pp.
     DESIGNATED STATES: W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ,
     CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
     GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
     LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH,
     PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA,
     UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI,
     CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL,
     PT, SE, SN, TD, TG, TR.  (Japanese). CODEN: PIXXD2.  APPLICATION: WO
     2003-JP13548 20031023.  PRIORITY: JP 2002-308731 20021023.
AB   The   ***fructosyl***     ***peptide***     ***oxidase***   (I) is
     isolated from Zingiberaceous   ***plant***  , esp. ginger.  I is useful
     for defructosylation of N-terminally fructosylated peptides, esp. human Hb
     A1c to yield glucosone and H2O2; and anal. and detn. of the N-terminally
     fructosylated peptide.  Isolation of I from rhizome of fresh ginger,
     physicochem. and enzymic characteristics of I, and detn. of
     fructosyl-val-his with I were shown.


=> index bioscience
FILE 'DRUGMONOG' ACCESS NOT AUTHORIZED
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                      ENTRY    SESSION
FULL ESTIMATED COST                                   11.81      12.02

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)          SINCE FILE      TOTAL
                                                      ENTRY    SESSION
CA SUBSCRIBER PRICE                                   -0.78      -0.78

INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, ANTE, AQUALINE,
       AQUASCI, BIOENG, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CAPLUS,
       CEABA-VTB, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DISSABS, DRUGB,
       DRUGMONOG2, DRUGU, EMBAL, EMBASE, ...' ENTERED AT 10:48:14 ON 07 JUN 2007

67 FILES IN THE FILE LIST IN STNINDEX
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Enter SET DETAIL ON to see search term postings or to view
search error messages that display as 0* with SET DETAIL OFF.

=> s (fructosyl(w)peptide(w)oxidase) and plant
          1   FILE BIOTECHABS
          1   FILE BIOTECHDS
          1   FILE CAPLUS
  23 FILES SEARCHED...
          1   FILE EMBASE
          1   FILE GENBANK
          1   FILE IFIPAT
          3   FILE USPATFULL
  62 FILES SEARCHED...

   7 FILES HAVE ONE OR MORE ANSWERS,   67 FILES SEARCHED IN STNINDEX

L2   QUE (FRUCTOSYL(W) PEPTIDE(W) OXIDASE) AND PLANT

=> file uspatfull

=> s (fructosyl(w)peptide(w)oxidase) and plant
           668 FRUCTOSYL
        140499 PEPTIDE
         31738 OXIDASE
             7 FRUCTOSYL(W)PEPTIDE(W)OXIDASE
        268868 PLANT
L3           3 (FRUCTOSYL(W)PEPTIDE(W)OXIDASE) AND PLANT

=> d 1-3 cbib abs

L3   ANSWER 1 OF 3  USPATFULL on STN
2007:62209 Novel   ***fructosyl***     ***peptide***     ***oxidase***   and
    utilization thereof.
    Ebinuma, Hiroyuki, Ibaraki, JAPAN
    DAIICHI PURE CHEMICALS CO., LTD., TOKYO, JAPAN, 103-0027 (non-U.S.
    corporation)
    US 2007054344 A1 20070308
    APPLICATION: US 2003-531305  A1  20031023 (10)
    WO 2003-JP13548 20031023 20050413  PCT 371 date
    PRIORITY: JP 2002-308731  20021023
    DOCUMENT TYPE: Utility; APPLICATION.
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB     The present invention is directed to a defructosylation enzyme
       originating from a   ***plant***  , a method of defructosylating a
       fructosylated peptide or protein through use of the enzyme, and a method
       of measuring a fructosylated peptide or protein.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3   ANSWER 2 OF 3  USPATFULL on STN
2007:42547 Process for producing alpha-glycosylated dipeptide and method of
    assaying alpha-glycosylated dipeptide.
    Hirokawa, Kozo, Chiba, JAPAN
    Kurosawa, Keiko, Chiba, JAPAN
    Kajiyama, Naoki, Chiba, JAPAN
    Kikkoman Corporation, Chiba, JAPAN, 278-8601 (non-U.S. corporation)
    US 2007037243 A1 20070215
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APPLICATION: US 2004-572052 A1 20040913 (10)
WO 2004-JP13302 20040913 20060315 PCT 371 date
PRIORITY: JP 2003-326224 20030918
JP 2003-421755 20031219
DOCUMENT TYPE: Utility; APPLICATION.
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention relates to a method for producing .alpha.-glycated dipeptide, which comprises causing protease to act on N-terminal-glycated peptide or N-terminal-glycated protein. The present invention further relates to a method for determining the amount of .alpha.-glycated dipeptide, which comprises causing a ***fructosyl*** ***peptide*** ***oxidase*** to act on the .alpha.-glycated dipeptide obtained by the above method and then determining the amount of the thus generated hydrogen peroxide. According to the present invention, a method for producing .alpha.-glycated dipeptide is provided, which enables the simple, rapid, and efficient production of .alpha.-glycated dipeptide from glycated protein or glycated peptide. Furthermore, according to the present invention, a method for determining the amount of .alpha.-glycated dipeptide is provided, which enables to determine the amount of .alpha.-glycated dipeptide in a highly precise manner within a short time period.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L3 ANSWER 3 OF 3 USPATFULL on STN
2007:30252 Method for stabilizing leuco dye.
Taniguchi, Yuriko, Ryugasaki-shi, JAPAN
Nishio, Tomohisa, Ryugasaki-shi, JAPAN
Ushizawa, Koji, Ryugasaki-shi, JAPAN
DAIICHI PURE CHEMICALS CO., LTD., Chuo-ku, JAPAN (non-U.S. corporation)
US 2007026523 A1 20070201
APPLICATION: US 2006-492082 A1 20060725 (11)
PRIORITY: US 2005-702630P 20050727 (60)
DOCUMENT TYPE: Utility; APPLICATION.
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Provided is a method for stabilizing a leuco dye, the method including storing a leuco dye in a solution in the co-presence of a protease protein.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=> s (fructos##(w)oxidase) and plant and (peptide or protein)
34097 FRUCTOS##
31738 OXIDASE
4 FRUCTOS##(W)OXIDASE
268868 PLANT
140499 PEPTIDE
255074 PROTEIN
L4 0 (FRUCTOS##(W)OXIDASE) AND PLANT AND (PEPTIDE OR PROTEIN)

=> file caplus

=> s (fructos##(w)oxidase) and plant and (peptide or protein)
65699 FRUCTOS##
122924 OXIDASE
4 FRUCTOS##(W)OXIDASE

```
        839934 PLANT
        371721 PEPTIDE
       2013520 PROTEIN
L5           0 (FRUCTOS##(W)OXIDASE) AND PLANT AND (PEPTIDE OR PROTEIN)

=> s (fructos##(w)oxidase)
         65699 FRUCTOS##
        122924 OXIDASE
L6           4 (FRUCTOS##(W)OXIDASE)

=> d 1-4 cbib abs

L6   ANSWER 1 OF 4  CAPLUS  COPYRIGHT 2007 ACS on STN
2004:582364   Document No. 142:171950  Enhanced   ***fructose***
      ***oxidase***   activity in a galactose oxidase variant.  Deacon, Sarah
     E.; Mahmoud, Khaled; Spooner, R. Kate; Firbank, Susan J.; Knowles, Peter
     F.; Phillips, Simon E. V.; McPherson, Michael J. (Astbury Centre for
     Structural Molecular Biology, School of Biochemistry and Molecular
     Biology, University of Leeds, Leeds, LS2 9JT, UK).  ChemBioChem, 5(7),
     972-979 (English) 2004.  CODEN: CBCHFX.  ISSN: 1439-4227.  Publisher:
     Wiley-VCH Verlag GmbH & Co. KGaA.
AB   Galactose oxidase (GO; EC 1.1.3.9) catalyzes the oxidn. of a wide range of
     primary alcs. including mono-, oligo- and polysaccharides.  High-resoln.
     structures have been detd. for GO, but no structural information is
     available for the enzyme with bound substrate or inhibitor.  Previously,
     computer-aided docking expts. have been used to develop a plausible model
     for interactions between GO and the D-galactose substrate.  Residues
     implicated in such interactions include Arg330, Gln406, Phe464, Phe194 and
     Trp290.  In the present study we describe an improved expression system
     for recombinant GO in the methylotrophic yeast Pichia pastoris.  We use
     this system to express variant proteins mutated at Arg330 and Phe464 to
     explore the substrate binding model.  We also demonstrate that the Arg330
     variants display greater   ***fructose***    ***oxidase***   activity
     than does wild-type GO.

L6   ANSWER 2 OF 4  CAPLUS  COPYRIGHT 2007 ACS on STN
2003:969428   Document No. 140:2528  Biosensor.  Miyamoto, Yoshiko; Yamamoto,
     Tomohiro; Hasegawa, Miwa; Yoshioka, Toshihiko (Matsushita Electric
     Industrial Co., Ltd., Japan).  Eur. Pat. Appl. EP 1369687 A1 20031210, 16
     pp.  DESIGNATED STATES: R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI,
     LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE,
     HU, SK.  (English).  CODEN: EPXXDW.  APPLICATION: EP 2003-253470 20030603.
     PRIORITY: JP 2002-161740 20020603.
AB   In a biosensor comprising an elec. insulating base plate, an electrode
     system including a working electrode and a counter electrode formed on the
     base plate, and a reaction layer formed on or in the vicinity of the
     electrode system, at least a surface of the reaction layer is made porous,
     so as to provide a biosensor of good response characteristic in which a
     reaction layer contg. an enzyme dissolves quickly into a small amt. of a
     sample soln. and the enzyme reaction is effectively utilized.  In one
     embodiment the reaction layer contains the enzyme and an aggregate of fine
     particles having an av. diam. of between 0.1 aem and 1 aem.  The fine
     particles may be made of a material selected from a polymer compd.,
     ceramic, glass, diamond and carbon.

L6   ANSWER 3 OF 4  CAPLUS  COPYRIGHT 2007 ACS on STN
1996:263863   Document No. 125:29082  Molecular genetic studies of the
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biosynthesis and physiological role of the glucose fructose oxidoreductase from Zymomonas mobilis. Wiegert, Thomas (Inst. Biotechnol., Forschungszent. Juelich G.m.b.H., Juelich, D-52425, Germany). Berichte des Forschungszentrums Juelich, Juel-3149, 1-101 (German) 1995. CODEN: FJBEE5. ISSN: 0366-0885.

AB The physiol. function and properties of the glucose-fructose oxidoreductase of Zymomonas mobilis were investigated. The study confirms the role of the enzyme in the biosynthesis of sorbitol as an osmotic protectant in growth on high-sugar substrates. The transport of the protein into the periplasmic space is used to study the mechanisms of transport of prosthetic group-contg. enzymes into the periplasmic space. The gfo gene encoding the enzyme is cloned and expressed in Escherichia coli. The structure of the NADP-binding site is studied by site-directed mutation.

L6 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2007 ACS on STN

1992:230973 Document No. 116:230973 Molecular interface for an activity controlled enzyme electrode and its application for the determination of fructose. Khan, Golam Faruque; Kobatake, Eiry; Shinohara, Hiroaki; Ikariyama, Yoshihito; Aizawa, Masuo (Fac. Biosci. Biotechnol., Tokyo Inst. Technol., Yokohama, 227, Japan). Analytical Chemistry, 64(11), 1254-8 (English) 1992. CODEN: ANCHAM. ISSN: 0003-2700.

AB A pyrroloquinoline quinone (PQQ) enzyme (fructose dehydrogenase) is electrochem. adsorbed into a monolayer and then immobilized on a platinum electrode surface by electrooxidative polymn. of polypyrrole. The conductive polymer matrix works as an interface that serves as an electron-shuttling medium between the enzyme and the electrode as well as the matrix for enzyme immobilization. The enzyme electrode demonstrates that the PQQ enzyme is rapidly turned over in the conductive material depending on the applied potential; i.e., the activity is electrochem. controllable. In other words, the enzyme in the conductive thin membrane exhibits a sharp increase in catalytic activity at the redox potential of the enzyme. On the other hand, less efficient electron transfer occurs at conventional electrodes without polypyrrole. Electrode properties are reported when the electrode is applied to the biosensing of D-fructose.

=> index bioscience
FILE 'DRUGMONOG' ACCESS NOT AUTHORIZED

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	27.27	50.96

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-3.12	-3.90

INDEX 'ADISCTI, ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, ANTE, AQUALINE, AQUASCI, BIOENG, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CAPLUS, CEABA-VTB, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DISSABS, DRUGB, DRUGMONOG2, DRUGU, EMBAL, EMBASE, ...' ENTERED AT 10:53:13 ON 07 JUN 2007

67 FILES IN THE FILE LIST IN STNINDEX

Enter SET DETAIL ON to see search term postings or to view search error messages that display as 0* with SET DETAIL OFF.

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=> s (fructos##(w)(oxidase or dehydrogenase)
UNMATCHED LEFT PARENTHESIS '(FRUCTOS##'
The number of right parentheses in a query must be equal to the
number of left parentheses.

=> s (fructos##(w)(oxidase or dehydrogenase))
          5   FILE AGRICOLA
         33   FILE ANABSTR
          1   FILE AQUASCI
         20   FILE BIOENG
         56   FILE BIOSIS
         54   FILE BIOTECHABS
         54   FILE BIOTECHDS
         26   FILE BIOTECHNO
         28   FILE CABA
        164   FILE CAPLUS
         16   FILE CEABA-VTB
          2   FILE CONFSCI
          3   FILE DDFB
          5   FILE DISSABS
          3   FILE DRUGB
         34   FILE EMBASE
         19   FILE ESBIOBASE
  31 FILES SEARCHED...
         12   FILE FROSTI
         14   FILE FSTA
        646   FILE GENBANK
         26   FILE IFIPAT
         20   FILE LIFESCI
         23   FILE MEDLINE
         37   FILE PASCAL
          2   FILE PROMT
         63   FILE SCISEARCH
          5   FILE TOXCENTER
        125   FILE USPATFULL
         28   FILE USPAT2
         49   FILE WPIDS
          2   FILE WPIFV
  66 FILES SEARCHED...
         49   FILE WPINDEX

  32 FILES HAVE ONE OR MORE ANSWERS,   67 FILES SEARCHED IN STNINDEX

L7   QUE (FRUCTOS##(W)(OXIDASE OR DEHYDROGENASE))

=> s (fructos##(w)(oxidase or dehydrogenase)) and plant
          1   FILE BIOSIS
  25 FILES SEARCHED...
         95   FILE GENBANK
  43 FILES SEARCHED...
         16   FILE USPATFULL
          3   FILE USPAT2

   4 FILES HAVE ONE OR MORE ANSWERS,   67 FILES SEARCHED IN STNINDEX

L8   QUE (FRUCTOS##(W)(OXIDASE OR DEHYDROGENASE)) AND PLANT
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=> file uspat2

=> s (fructos##(w)(oxidase or dehydrogenase)) and plant
          4024 FRUCTOS##
          3912 OXIDASE
          4621 DEHYDROGENASE
            28 FRUCTOS##(W)(OXIDASE OR DEHYDROGENASE)
         29341 PLANT
L9            3 (FRUCTOS##(W)(OXIDASE OR DEHYDROGENASE)) AND PLANT

=> d 1-3 cbib abs

L9   ANSWER 1 OF 3  USPAT2 on STN
2003:219533 Biological fuel cell and methods.
    Heller, Adam, Austin, TX, UNITED STATES
    Abbott Diabetes Care Inc., Alameda, CA, UNITED STATES (U.S. corporation)
    US 7018735 B2 20060328
    APPLICATION: US 2003-385069  20030310 (10)
    PRIORITY: US 1998-89900P  19980617 (60)
    DOCUMENT TYPE: Utility; GRANTED.
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB      A fuel cell has an anode and a cathode with anode enzyme disposed on the
        anode and cathode enzyme is disposed on the cathode. The anode is
        configured and arranged to electrooxidize an anode reductant in the
        presence of the anode enzyme. Likewise, the cathode is configured and
        arranged to electroreduce a cathode oxidant in the presence of the
        cathode enzyme. In addition, anode redox hydrogel may be disposed on the
        anode to transduce a current between the anode and the anode enzyme and
        cathode redox hydrogel may be disposed on the cathode to transduce a
        current between the cathode and the cathode enzyme.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9   ANSWER 2 OF 3  USPAT2 on STN
2002:259466 Method and composition for treating cancer using cellular organelle
    crystallizing agents.
    Kong, Qingzhong, 799 Dahlia St., #502, Denver, CO, United States  80220
    US 6864272 B2 20050308
    APPLICATION: US 2002-96156  20020311 (10)
    DOCUMENT TYPE: Utility; GRANTED.
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB      This invention provides a method for treating cancer in mammals through
        cellular-organelle-crystallization-induced-death (herein defined as
        "Cocid"), a method for treating cancer using cellular organelle and/or
        cytoskeleton crystallizing agents (e.g. tetrazolium salts and their
        derivatives), pharmaceutical compositions containing a therapeutically
        effective amount of organelle and/or cytoskeleton crystallizing agents,
        and compositions containing organelle and/or cytoskeleton crystallizing
        agents in combination with a pharmaceutically acceptable carrier,
        diluent or excipient. The crystallizing agents with or without a
        pharmaceutically acceptable carrier, diluent or excipient, are used in
        combination with surgery and/or non-surgical anti-tumor treatments.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L9   ANSWER 3 OF 3  USPAT2 on STN
2002:43104 Biological fuel cell and methods.
```

Heller, Adam, Austin, TX, United States
TheraSense, Inc., Alameda, CA, United States (U.S. corporation)
US 6531239 B2 20030311
APPLICATION: US 2001-961621 20010924 (9)
PRIORITY: US 1998-89900P 19980617 (60)
DOCUMENT TYPE: Utility; GRANTED.
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A fuel cell has an anode and a cathode with anode enzyme disposed on the anode and cathode enzyme is disposed on the cathode. The anode is configured and arranged to electrooxidize an anode reductant in the presence of the anode enzyme. Likewise, the cathode is configured and arranged to electroreduce a cathode oxidant in the presence of the cathode enzyme. In addition, anode redox hydrogel may be disposed on the anode to transduce a current between the anode and the anode enzyme and cathode redox hydrogel may be disposed on the cathode to transduce a current between the cathode and the cathode enzyme.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=> file caplus

=> s (fructos##(w)(oxidase or dehydrogenase))
65699 FRUCTOS##
122924 OXIDASE
168478 DEHYDROGENASE
L10 164 (FRUCTOS##(W)(OXIDASE OR DEHYDROGENASE))

=> d 154-164 cbib abs

L10 ANSWER 154 OF 164 CAPLUS COPYRIGHT 2007 ACS on STN
1982:452165 Document No. 97:52165 Quantitation of D-fructose. (Ameyama, Minoru, Japan). Jpn. Kokai Tokkyo Koho JP 57063097 A 19820416 Showa, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1980-139164 19801004.
AB A sample contg. D-fructose is reacted with D- ***fructose*** ***dehydrogenase*** and electron acceptors in the presence of O, and the D-fructose is quantitated on the basis of increases in 5-keto-D-fructose or reduced electron acceptors formed, or decreases in oxidized electron acceptors or O in the reaction mixt. Thus, a sample was treated with a soln. contg. D- ***fructose*** ***dehydrogenase*** in 1% Triton X-100 and buffer (pH 4.5) for 25.degree. for 5 min, followed by addn. of K ferricyanide soln., a soln. contg. ferric sulfate, Na lauryl sulfate and H3PO4, and distd. H2O. The mixt. was analyzed spectrometrically at 660 nm (absorbance for Prussian blue) for the detn. of D-fructose.

L10 ANSWER 155 OF 164 CAPLUS COPYRIGHT 2007 ACS on STN
1981:134722 Document No. 94:134722 D- ***Fructose*** ***dehydrogenase*** of Gluconobacter industrius: purification, characterization, and application to enzymic microdetermination of D-fructose. Ameyama, Minoru; Shinagawa, Emiko; Matsushita, Kazunobu; Adachi, Osao (Fac. Agric., Yamaguchi Univ., Yamaguchi, 753, Japan). Journal of Bacteriology, 145(2), 814-23 (English) 1981. CODEN: JOBAAY. ISSN: 0021-9193.
AB D- ***Fructose*** ***dehydrogenase*** (I) was solubilized and purified from the membrane fraction of glycerol-grown G. industrius IFO 3260. Purified I was tightly bound to a c-type cytochrome and another

peptide existing as a dehydrogenase-cytochrome complex. I was homogeneous in anal. ultracentrifugation as well as gel filtration. The mol. wt. of the I complex was .apprx.140,000, and SDS-polyacrylamide gel electrophoresis showed the presence of 3 components having mol. wts. of 67,000 (the enzyme protein), 50,800 (cytochrome c), and 19,700 (unknown function). Only D-fructose was readily oxidized by I in the presence of dyes such as ferricyanide, 2,6-dichlorophenolindophenol, or phenazine methosulfate. The optimum pH of D-fructose oxidn. was 4.0. I was stable at pH 4.5-6.0. Stability of purified I was much enhanced by the presence of detergent in the enzyme soln. Removal of detergent from the enzyme soln. facilitated the aggregation of I and caused its inactivation. An apparent Km for D-fructose was 10-2M with purified I. I was a satisfactory reagent for microdetn. of D-fructose.

L10 ANSWER 156 OF 164 CAPLUS COPYRIGHT 2007 ACS on STN
1968:416362 Document No. 69:16362 Coenzyme Q10 in the respiratory chain linked to ***fructose*** ***dehydrogenase*** of Gluconobacter cerinus [Acetobacter cerinus]. Yamada, Yuzo; Aida, Ko; Uemura, Teijiro (Univ. Tokyo, Tokyo, Japan). Agricultural and Biological Chemistry, 32(4), 532-4 (English) 1968. CODEN: ABCHA6. ISSN: 0002-1369.
AB The factor that links ***fructose*** ***dehydrogenase*** to the respiratory chain of A. cerinus was identified as coenzyme Q10.

L10 ANSWER 157 OF 164 CAPLUS COPYRIGHT 2007 ACS on STN
1967:429412 Document No. 67:29412 Enzymic studies on the oxidation of sugar and sugar alcohol, I. Purification and properties of particle-bound ***fructose*** ***dehydrogenase*** . Yamada, Yuzo; Aida, Ko; Uemura, Teijiro (Univ. Tokyo, Tokyo, Japan). Journal of Biochemistry (Tokyo, Japan), 61(5), 636-46 (English) 1967. CODEN: JOBIAO. ISSN: 0021-924X.
AB ***Fructose*** ***dehydrogenase*** (I) was obtained from fructose-grown cells of Gluconobacter cerinus. The enzyme present in particulate fraction was solubilized by deoxycholate and BuOH extn., and purified 40-50 fold by acetone pptn. and DEAE-cellulose column chromatog. 2,6-Dichlorophenol indophenol (II) was the most effective electron acceptor but neither NAD nor NADP was required. The optimal pH was 5.0 and Km for D-fructose was 10-2M in the presence of 6.7 .times. 10-4M of II. p-Chloromercuribenzoate, phenylmercuricnitrate, as well as Ag+ and Hg++, inhibited most of the activity of I. L-Sorbose, sucrose, and polyols were inactive as a substrate. The partially purified enzyme prepn. had an activity towards D-glucose, D-gluconate, and aldoses. This I was different from either glucose dehydrogenase or gluconate dehydrogenase. It was proposed that the enzyme is a new type of the Bertrand-Hudson enzyme. 31 references.

L10 ANSWER 158 OF 164 CAPLUS COPYRIGHT 2007 ACS on STN
1967:419298 Document No. 67:19298 Variability and heritability of the quantitative and qualitative characteristics of the sperm of bulls of the brown Latvian breed. Samoilo, G. A. Genetika (Moscow) (1), 122-30 (Russian) 1967. CODEN: GNKAA5. ISSN: 0016-6758.
AB The physiol. characteristics of the sperm of 121 bulls were estd. In addn., the amt. of lipid P and ***fructose*** , ***dehydrogenase*** activity, and fructolysis of the sperm were detd. Variations in the extent of usage of the bulls did not influence the physiol. and biochem. characteristics of the sperm. No differences with age were detected for 3-7-year-old bulls. Heritability coeffs. for lipid P, fructose, and fructolysis of the sperm were statistically significant. The use of these

biochem. criteria as a basis for selection is recommended.

L10 ANSWER 159 OF 164 CAPLUS COPYRIGHT 2007 ACS on STN
1966:69330 Document No. 64:69330 Original Reference No. 64:13023g-h A new enzyme, D- ***fructose*** ***dehydrogenase*** . Yamada, Yuzo; Aido, Ko; Uemura, Teijiro (Univ. Tokyo). Agr. Biol. Chem. (Tokyo), 30(1), 95-6 (English) 1966.
AB From the sonicated cells of A cetobacter cerinus var ammoniacus, D- ***fructose*** ***dehydrogenase*** was partially purified. The enzyme required NADH for the reaction, the optimum pH 5.0. The product was 5-ketofructose.

L10 ANSWER 160 OF 164 CAPLUS COPYRIGHT 2007 ACS on STN
1958:72993 Document No. 52:72993 Original Reference No. 52:13007a-b A presumable pathway of kojic acid formation from fructose by Gluconoacetobacter. Ikeda, Yonusuke (Univ. Tokyo). Journal of General and Applied Microbiology, 1, 152-63 (Unavailable) 1955. CODEN: JGAMA9. ISSN: 0022-1260.
AB When fructose was incubated with G. roseus, 2 compds. were isolated. One was identified as glucosone (I) and the other remained unknown. I was postulated to be an intermediate of the kojic acid formation. The activity of ***fructose*** ***dehydrogenase*** was of the same order as gluconic dehydrogenase. It was inhibited by 2,4-dinitrophenol while mannitol, glucose, and gluconic dehydrogenases remained unaffected.

L10 ANSWER 161 OF 164 CAPLUS COPYRIGHT 2007 ACS on STN
1956:90044 Document No. 50:90044 Original Reference No. 50:16964i,16965a-c Kojic acid fermentation. IV. Oxidation of ketoses by Acetobacter and its relation to kojic acid formation. Ikeda, Yonosuke (Univ. Tokyo). Nippon Nogei Kagaku Kaishi, 28, 538-43 (Unavailable) 1954. CODEN: NNKKAA. ISSN: 0002-1407.
AB cf. C.A. 48, 10113i. The unidentified substance in Part III was shown to be glucosone (I). The formation of I from fructose by A. roseum is a similar reaction with the formation of reductone from dihydroxy-acetone by the same bacteria. A presumable pathway of ketose oxidn. would be as follows: CH2OH.CO.CH-OH.R .dblharw. CHOH: COH.CHOH.R .fwdarw. CHO.CO.CHOH.R .dblharw. CHO.COH:COH.R. This hypothesis agreed well with the expts. of Magasanik and Chargaff (C.A. 42, 5068e) on the formation of .alpha.,.beta.-diketo-inositol from inosose by A. suboxydans. The ***fructose*** ***dehydrogenase*** of A. roseum was investigated by the Thunberg method. The activity of this dehydrogenase was of the same order as that of gluconic acid dehydrogenase and was inhibited by the addn. of 1:5000 2,4-dinitrophenol, when other dehydrogenases such as glucose, gluconic acid, and mannitol dehydrogenases were not affected. The ***fructose*** ***dehydrogenase*** of this bacterium seemed to be of the same type as the dihydroxyacetone dehydrogenase of A. suboxydans. A new substance was isolated from the fermented broth of fructose. This compd. gave a purple color with FeCl3, and gave different m.p. (166.degree.) and Rf from kojic acid, comenic acid, rubiginol, and rubiginic acid. I was presumed the most possible intermediate of kojic acid formation.

L10 ANSWER 162 OF 164 CAPLUS COPYRIGHT 2007 ACS on STN
1948:10462 Document No. 42:10462 Original Reference No. 42:2299f-g Enzymic dehydrogenation of sugars. IX. Sugar dehydrogenase from dry yeast. Miyake, Suguru; Kurasawa, Fumio J. Soc. Trop. Agr. Taihoku Imp. Univ., 13, 193-200 (Unavailable) 1941.

AB By Thunberg's methylene blue method dry sirup and beer yeasts were tested for enzymic action on 0.01 and 0.001 M solns. of glucose, fructose, mannose, galactose, arabinose, xylose, K galacturonate, K lactate, and EtOH, and found to contain a dehydrogenase for glucose, fructose, and galacturonic acid.

L10 ANSWER 163 OF 164 CAPLUS COPYRIGHT 2007 ACS on STN
1947:15358 Document No. 41:15358 Original Reference No. 41:3141c-d Influence of the chemical structure of substrates on the action of nucleotide-type and of thiazole-type dehydrogenases which are activated by magnesium ion. Tadokoro, Tetsutaro; Saito, Tsuneyuki Nippon Kagaku Kaishi (1921-47), 63, 462-4 (Unavailable) 1942. CODEN: NIKWAB. ISSN: 0369-4208.
AB The dehydrogenase actions of guanylic acid and of thiazole-type enzymes on the substrates hippuric acid, fumaric acid, succinic acid, malic acid, tyrosine, mannose, mannitol, valine, isovaline, glutamic acid, aspartic acid, and fructose were studied. No simple regular relation is observed.

L10 ANSWER 164 OF 164 CAPLUS COPYRIGHT 2007 ACS on STN
1947:15348 Document No. 41:15348 Original Reference No. 41:3139h-i Influence of the chemical structure of substrates on the action of nucleotide-type and of thiazole-type dehydrogenases activated by magnesium ion. Tadokoro, Tetsutaro; Saito, Tsuneyuki Nippon Kagaku Kaishi (1921-47), 63, 256-9 (Unavailable) 1942. CODEN: NIKWAB. ISSN: 0369-4208.
AB Guanylic acid and I and II act on galactose more strongly than on galacturonic acid. When glucose, mannose, and fructose are used as substrates, the promotive action of FeSO4 for dehydrogenation is much larger than that of Fe2(SO4)3. When mannuronic acid, galacturonic acid, succinate, lactate, malate, and Me, Et, and Pr alcs. are used as substrates, there is no difference between the promoting actions of FeSO4 and Fe2(SO4)3. When glucose and citrate are used as substrates, AlCl3 accelerates the dehydrogenation, but NiSO4 and CuSO4 inhibit the dehydrogenation. In the presence of MgCl2, guanylic acid acts on aspartic acid and succinic acid equally, but the two dehydrogenases of thiazole type act on aspartic acid more strongly than on succinic acid.

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=> s (fructos##(w)(oxidase or dehydrogenase)) and (peptide or protein)
         65699 FRUCTOS##
        122924 OXIDASE
        168478 DEHYDROGENASE
           164 FRUCTOS##(W)(OXIDASE OR DEHYDROGENASE)
        371721 PEPTIDE
       2013520 PROTEIN
L11          24 (FRUCTOS##(W)(OXIDASE OR DEHYDROGENASE)) AND (PEPTIDE OR PROTEIN
                )

=> d 1-24 cbib abs
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L11 ANSWER 1 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN
2007:221257 Document No. 146:333296 High current density bioelectrolysis of D-fructose at ***fructose*** ***dehydrogenase*** -adsorbed and Ketjen black-modified electrodes without a mediator. Kamitaka, Yuji; Tsujimura, Seiya; Kano, Kenji (Division of Applied Life Sciences, Graduate School of Agriculture, Kyoto University, Sakyo-ku, Kyoto, 606-8502, Japan). Chemistry Letters, 36(2), 218-219 (English) 2007. CODEN: CMLTAG. ISSN: 0366-7022. Publisher: Chemical Society of Japan.

AB D- ***Fructose*** ***dehydrogenase*** (FDH) has been irreversibly adsorbed without loss of the enzymic activity on Ketjen black (KB)-modified glassy carbon electrodes, although the adsorption rate is very slow probably owing to the microstructure of KB. The FDH-adsorbed electrode produced the enzyme-kinetic-controlled catalytic oxidn. wave of D-fructose at current densities of as high as 10 mA cm-2 without a mediator, in which the electron in FDH seems to be directly transferred to the electrode via the heme c site. No hindrance was obsd. in the mass transfer of D-fructose to KB-modified electrodes.

L11 ANSWER 2 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN

2006:1167290 Electrostatic assemblies for bioelectrocatalytic and bioelectronic applications. Dominguez, Elena; Suarez, Guillaume; Narvaez, Arantzazu (Departmento de Quimica Analitica, Facultad de Farmacia, Universidad de Alcala, Madrid, 22871, Spain). Electroanalysis, 18(19-20), 1871-1878 (English) 2006. CODEN: ELANEU. ISSN: 1040-0397. Publisher: Wiley-VCH Verlag GmbH & Co. KGaA.

AB This work extensively covers the use of layer-by-layer (LbL) assembly of polyelectrolytes for the transduction of catalytic and affinity events. It is demonstrated that by controlling the charge of polyelectrolytes, electrostatic interactions drive then the LbL construction of supramol. architectures with improved performance. Particularly, by adequately charging an osmium based redox polymer, a multicofactor ***protein*** (***fructose*** ***dehydrogenase***) may be deposited in a favored orientation resulting in a more efficient electrochem. communication. A H2O2 transducing interface is created by the enhancement of electrostatic interactions between the electrochem. and catalytic layer. Further assemblies include the coupling of an oxidase (alc. oxidase) with the H2O2 transducing interface resulting in a linear increase of current with the no. of AOX layers. Finally, affinity assemblies are demonstrated by deposition of anti Dexamethasone antibodies. Faraday currents are then obtained by the electrochem. communication between the HRP labeled immunoconjugate and the electrochem. interface in a heterogeneous competitive assay format.

L11 ANSWER 3 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN

2005:319235 Document No. 143:418013 Direct electrochemistry of heme multicofactor-containing enzymes on alkanethiol-modified gold electrodes. Ferapontova, Elena E.; Gorton, Lo (Group of Bioinformatics, Weblab, IT Centre, Voskhod 26a, Novosibirsk, 630102, Russia). Bioelectrochemistry, 66(1-2), 55-63 (English) 2005. CODEN: BIOEFK. ISSN: 1567-5394. Publisher: Elsevier B.V..

AB Direct electrochem. of heme multicofactor-contg. enzymes, e.g., microbial theophylline oxidase (ThOx) and D- ***fructose*** ***dehydrogenase*** (FDH) from Gluconobacter industrius was studied on alkanethiol-modified gold electrodes and was compared with that of some previously studied complex heme enzymes, specifically, cellobiose dehydrogenase (CDH) and sulfite oxidase (SOx). The formal redox potentials for enzymes in direct electronic communication varied for ThOx from -112 to -101 mV (vs. Ag|AgCl), at pH 7.0, and for FDH from -158 to -89 mV, at pH 5.0 and pH 4.0, resp., on differently charged alkanethiol layers. Direct and mediated by cytochrome c electrochem. of FDH correlated with the existence of two active centers in the ***protein*** structure, i.e., the heme and the pyrroloquinoline quinone (PQQ) prosthetic groups. The effect of the alkanethiols of different polarity and charge on the surface properties of the gold electrodes necessary for adsorption and orientation of ThOx, FDH, CDH and SOx, favorable for the efficient electrode-enzyme

electron transfer reaction, is discussed.

L11 ANSWER 4 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN
2004:626672 Document No. 142:193133 Physico-chemical and transglucosylation properties of recombinant sucrose phosphorylase from Bifidobacterium adolescentis DSM20083. van den Broek, L. A. M.; van Boxtel, E. L.; Kievit, R. P.; Verhoef, R.; Beldman, G.; Voragen, A. G. J. (Laboratory of Food Chemistry, Wageningen University, Wageningen, 6700 EV, Neth.). Applied Microbiology and Biotechnology, 65(2), 219-227 (English) 2004. CODEN: AMBIDG. ISSN: 0175-7598. Publisher: Springer GmbH.
AB Clones of a genomic library of Bifidobacterium adolescentis were grown in minimal medium with sucrose as sole carbon source. An enzymic ***fructose*** ***dehydrogenase*** assay was used to identify sucrose-degrading enzymes. Plasmids were isolated from the pos. colonies and sequence anal. revealed that two types of insert were present, which only differed with respect to their orientation in the plasmid. An open reading frame of 1,515 nucleotides with high homol. for sucrose phosphorylases was detected on these inserts. The gene was designated SucP and encoded a ***protein*** of 56,189 Da. SucP was heterologously expressed in Escherichia coli, purified, and characterized. The mol. mass of SucP was 58 kDa, as estd. by SDS-PAGE, while 129 kDa was found with gel permeation, suggesting that the native enzyme was a dimer. The enzyme showed high activity towards sucrose and a lower extent towards .alpha.-glucose-1-phosphate. The transglucosylation properties were investigated using a broad range of monomeric sugars as acceptor substrate for the recombinant enzyme, while .alpha.-glucose-1-phosphate served as donor. d- and l-arabinose, d- and l-arabitol, and xylitol showed the highest prodn. of transglucosylation products. The investigated disaccharides and trisaccharides were not suitable as acceptors. The structure of the transglucosylation product obtained with d-arabinose as acceptor was elucidated by NMR. The structure of the synthesized non-reducing dimer was .alpha.-Glcp(1.fwdarw.1).beta.-Araf.

L11 ANSWER 5 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN
2004:533804 Document No. 141:50190 Functionalization of immobilized proteins. Van Antwerp, William P. (Medtronic Minimed, Inc., USA). U.S. Pat. Appl. Publ. US 2004126831 A1 20040701, 5 pp. (English). CODEN: USXXCO. APPLICATION: US 2002-335505 20021231.
AB A method for optimizing the function of a sensor device, wherein a ***protein*** , such as an enzyme, is immobilized in a matrix, the matrix is adhered to the device and the ***protein*** comprises at least one reactive moiety. The immobilized ***protein*** is reacted with a redox agent, wherein the reacting increases the stability of the immobilized ***protein*** . The device can be sterilized after the reacting step. A typical device comprises a glucose sensor in which glucose oxidase is embedded in a polymer matrix adhered to the device, the reactive moiety comprises FADH 2, and the redox agent is the reducing agent, sodium borohydride. Also provided is a method of measuring an analyte in a tissue of a subject comprising introducing a sensor device of the invention into the tissue of the subject and detecting the signal generated by the ***protein*** . The amt. of signal corresponds to the amt. of analyte.

L11 ANSWER 6 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN
2003:173895 Document No. 138:201287 Self-powered biosensor. Willner, Itamar; Katz, Evgeny (Yissum Research Development Company of the Hebrew

University of Jerusalem, Israel). PCT Int. Appl. WO 2003019170 A1 20030306, 24 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2002-IL660 20020812. PRIORITY: IL 2001-145182 20010829.

AB The present invention provides a system for the detn. of an analyte in a liq. medium. The system comprises a self-powered biosensor and a detector for measuring an elec. signal generated by said biosensor while the analyte is being oxidized or reduced, the biosensor comprising a pair of electrodes, one of the electrodes being an anode and the other a cathode, both of which carry redox enzymes on their surface. An enzyme carried on one of the electrodes can catalyze an oxidn. or redn. reaction in which the analyte is oxidized or reduced, resp., and the other of said pair of electrodes carries on its surface enzymes that can catalyze a reaction in which the oxidizer or the reducer are reduced or oxidized, resp., in the presence of the analyte.

L11 ANSWER 7 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN

2002:928122 Document No. 138:12504 Method for assaying biomolecules and other constituents using indicator conjugates with synthetic nucleounits in lateral flow, liquid, and dry chemistry techniques. Smith, Jack V. (USA). U.S. Pat. Appl. Publ. US 2002182600 A1 20021205, 46 pp. (English). CODEN: USXXCO. APPLICATION: US 2001-829563 20010411.

AB The present invention is a method for the use of particles made up of nucleotides or fragments of base groups of DNA and RNA mols. herein referred to as synthetic nucleounits which can be used as recognition mols. with specificity and sensitivity significantly greater than that of antibodies which are used in clin. diagnostics, biotechnol., and research. The method for detecting an analyte using nucleounits targeted to the analyte comprises (1) identifying a nucleounit from a mixt. of synthetic random sequences of nucleounit libraries, (2) conjugating the nucleounit to an indicator for the analyte, and (3) detecting the analyte using the nucleounit-indicator conjugate in a buffer. Step 1 is carried out by (a) contacting the analyte with the mixt. of synthetic random sequences of nucleounit libraries such that some nucleounits bind the analyte, (b) removing the unbound nucleounits by partitioning, and (c) amplifying the remaining nucleounits by PCR to obtain an enriched soln. of nucleounits with high affinity for the analyte. Thus, a method and lateral flow test strip for detection of cytomegalovirus (CMV) presence in a biol. sample such as serum or urine is described. The strip is prepd. with three solns., one contg. anti-CMV antibodies, one contg. "nucleounit to CMV antibody conjugated to red microparticles" and "red microparticles", and another contg. "nucleounit to colored particles". The "nucleounit" may be an oligonucleotide aptamer specific for anti-CMV antibodies.

L11 ANSWER 8 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN

2002:373398 Document No. 137:90456 Thiol-functionalized gold surfaces as a strategy to induce order in membrane-bound enzyme immobilization. Casero, Elena; Darder, Margarita; Pariente, Felix; Lorenzo, Encarnacion; Martin-Benito, Jaime; Vazquez, Luis (Departamento de Quimica Analitica y Analisis Instrumental Facultad de Ciencias, Universidad Autonoma de

Madrid, Madrid, 28094, Spain). Nano Letters, 2(6), 577-582 (English) 2002. CODEN: NALEFD. ISSN: 1530-6984. Publisher: American Chemical Society.

AB We have devised a strategy to induce order at the nanometer level in a membrane-bound enzyme layer, ***fructose*** ***dehydrogenase*** , on gold substrates. The procedure is based on an adequate choice of the chem. and morphol. properties of the thiol, with respect to the ***protein*** structure, used as intermediate self-assembled layer. The nanometer order of the ***protein*** layer was assessed by means of at. force microscopy operating in buffer solns.

L11 ANSWER 9 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN

2001:771022 Document No. 135:287908 Methods for using dehydrogenases in baking. Xu, Feng; Wagner, Peter (Novozymes Biotech Inc., USA; Novozymes A/S). U.S. US 6306445 B1 20011023, 13 pp., Cont.-in-part of U.S. Ser. No. 78,183, abandoned. (English). CODEN: USXXAM. APPLICATION: US 1999-311687 19990513. PRIORITY: US 1998-78183 19980513.

AB A dehydrogenase is incorporated into dough to improve one or more properties of the dough or a baked product obtained from the dough. Premixes may also be used. Thus, cellobiose dehydrogenase or ***fructose*** ***dehydrogenase*** are added to bread dough to improve vol., stickiness, firmness, crumb structure, etc.

L11 ANSWER 10 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN

2000:670973 Document No. 134:292214 Electron transfer between redox enzymes and electrodes through the artificial redox proteins and its application for biosensors. Shinohara, Hiroaki; Kusaka, Taichi; Yokota, Eisaku; Monden, Reiko; Sisido, Masahiko (Department of Bioscience and Biotechnology, Faculty of Engineering, Okayama University, Okayama, 700-8530, Japan). Chemical Sensors, Technical Digest of the International Meeting, 7th, Beijing, China, July 27-30, 1998, 256-258. International Academic Publishers: Beijing, Peop. Rep. China. (English) 1998. CODEN: 69AJWI.

AB Three kinds of artificial redox proteins have been designed and prepd. in order to discuss the applicability of them for the facile electron transferring interfaces between redox enzymes and electrode materials. At first, ferrocene deriv.-modified bovine serum albumin was prepd. and was adsorbed together with ***fructose*** ***dehydrogenase*** on the conductive SnO2 electrode to fabricate an enzyme sensor for fructose. Secondly, avidins which were chem. modified with anthraquinonyl group or pyrroloquinoline quinone were prepd. They were assembled onto biotin-modified gold electrode surfaces and their redox properties at the surface-bound state were electrochem. studied. At third, the genetically engineered streptavidin into which a redox-active nonnatural amino acid, anthraquinonylalanine was incorporated at a specific site was synthesized and characterized as an artificial redox ***protein*** .

L11 ANSWER 11 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN

2000:456233 Document No. 133:278229 Electron transfer between redox enzymes and electrodes through the artificial redox proteins and its application for biosensors. Shinohara, H.; Kusaka, T.; Yokota, E.; Monden, R.; Sisido, M. (Faculty of Engineering, Department of Bioscience and Biotechnology, Okayama University, Okayama, 700-8530, Japan). Sensors and Actuators, B: Chemical, B65(1-3), 144-146 (English) 2000. CODEN: SABCEB. ISSN: 0925-4005. Publisher: Elsevier Science S.A..

AB Three kinds of artificial redox proteins have been designed and prepd. in

order to discuss their applicability for the facile electron transferring interfaces between redox enzymes and electrode materials. First, ferrocene deriv.-modified bovine serum albumin was prepd. and was adsorbed together with ***fructose*** ***dehydrogenase*** on the conductive SnO2 electrode to fabricate an enzyme sensor for fructose. Second, avidins, which were chem. modified with anthraquinonyl group or pyrroloquinoline quinone (PQQ), were prepd. They were assembled onto biotin-modified gold electrode surfaces and their redox properties at the surface-bound state were electrochem. studied. Third, the genetically engineered streptavidin into which a redox-active non-natural amino acid, anthraquinonylalanine was incorporated at a specific site was synthesized and characterized as an artificial redox ***protein*** .

L11 ANSWER 12 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN

1999:563656 Document No. 132:49183 Electrochemical biosensors for quality control in the food industry. Palleschi, G.; Compagnone, D.; Moscone, D. (Dipartimento di Scienze e Tecnologie Chimiche, Universita' Tor Vergata, via della Ricerca Scientifica, Rome, 00133, Italy). Sensors and Microsystems, Proceedings of the Italian Conference, 3rd, Genova, Feb. 11-13, 1998, Meeting Date 1998, 40-47. Editor(s): Di Natale, Corrado; D'Amico, Arnaldo; Sberveglieri, Giorgio. World Scientific: Singapore, Singapore. (English) 1999. CODEN: 68BGAJ.

AB Enzyme electrodes and/or reactors for the detn. of lysine content in food proteins, lactulose in milk and glycerol in wine have been developed. The general strategy consisted in the covalent immobilization of enzymes as glycerol-3-P oxidase, glycerokinase, lysine oxidase, ***fructose*** ***dehydrogenase*** and .beta.-galactosidase onto a membrane or glass beads with electrochem. detection of the reaction products. A Flow Injection Anal. manifold was used for lysine and glycerol while microdialysis sampling was used for lactulose. This work presents data about the anal. optimization of the biosensors as well as application to real samples anal.

L11 ANSWER 13 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN

1997:405298 Document No. 127:187488 Adsorption of proteins on electro-conductive polymer films. Khan, Golam Faruque; Wernet, Wolfgang (Department of Chemical Engineering, National University of Singapore, 10 Kent Ridge Crescent, Singapore, 119260, Singapore). Thin Solid Films, 300(1-2), 265-271 (English) 1997. CODEN: THSFAP. ISSN: 0040-6090. Publisher: Elsevier.

AB Shapable electro-conductive (SEC) polymer films (polyanion-doped polypyrrole films) show several interesting properties for bioelectrochem. applications. The SEC film can be used as an inert, stable and hydrophobic electrode in aq. soln. over a wide potential range. In this study, the phys. and the potential-assisted adsorption of various proteins on the SEC film is described. Because of the hydrophobic surface characteristic proteins easily adsorb and retain on the film surface by strong hydrophobic interactions. The amt. of the adsorbed ***protein*** varies from 2.2 to 4.8 .mu.g cm-2 depending on the ***protein*** when the film is incubated for 22 h in the ***protein*** soln. The adsorption is effectively accelerated and enhanced by applying a pos. potential in the range from 0.4 V to 1.0 V (vs. Ag/AgCl). The potential-assisted adsorption process is completed by 10-15 min and the amt. of the adsorbed ***protein*** is nearly doubled as compared to the adsorption without potential. The adsorbed ***protein*** is chem. very stable in comparison with the ***protein*** in soln. More than 85% of the initial adsorbed proteins retains on the surface after three

weeks of incubation in buffer soln. The initial adsorption rate is studied by quartz crystal microbalance measurements on a thin polymer film coated quartz crystal. In addn., the SEC film surface is etched with air plasma which leads to a four-fold increase of the adsorption of proteins.

L11 ANSWER 14 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN
1996:501260 Document No. 125:188881 Kinetics of association processes of D-***fructose*** ***dehydrogenase*** onto liposome surfaces. Kakinoki, Kazuhiro; Maeda, Yasushi; Hasegawa, Kiyoshi; Kitano, Hiromi (Dep. Chemical Biochemical Engineering, Toyama Univ., Toyama, 930, Japan). Polymer Bulletin (Berlin), 37(3), 407-414 (English) 1996. CODEN: POBUDR. ISSN: 0170-0839. Publisher: Springer.
AB Assocn. processes of D- ***fructose*** ***dehydrogenase*** (FDH) onto surfaces of liposomes which were composed of N-(5-dimethylamino-1-naphthalenesulfonyl)-L-.alpha.-dimyristoylphosphatidylethanolamide and L-.alpha.-dimyristoylphosphatidylcholine or L-.alpha.-dimyristoylphosphatidylglycerol (1:9) were investigated by the fluorescence stopped-flow technique. The assocn. processes were divided into 2 relaxation processes: the faster process whose apparent rate const. monotonously increased with the concn. of FDH, and the slower process whose rate const. showed a satn. behavior. Taking the no. of binding sites on the liposome surface into consideration, the cor. assocn. rate const. of the faster process was 4.4% of the theor. value for a binary collision, probably due to a disadvantageous surface-searching and dehydration processes on the liposome and ***protein*** surfaces. The Arrhenius plots of the rate consts. both for the faster and slower steps showed a discontinuous change around the gel to liq.-crystal phase transition temp. of the liposomes. Strong influences of deformability of liposomes, and state of hydrating water mols. around polar heads, on the rate of assocn. processes were suggested.

L11 ANSWER 15 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN
1996:263863 Document No. 125:29082 Molecular genetic studies of the biosynthesis and physiological role of the glucose fructose oxidoreductase from Zymomonas mobilis. Wiegert, Thomas (Inst. Biotechnol., Forschungszent. Juelich G.m.b.H., Juelich, D-52425, Germany). Berichte des Forschungszentrums Juelich, Juel-3149, 1-101 (German) 1995. CODEN: FJBEE5. ISSN: 0366-0885.
AB The physiol. function and properties of the glucose-fructose oxidoreductase of Zymomonas mobilis were investigated. The study confirms the role of the enzyme in the biosynthesis of sorbitol as an osmotic protectant in growth on high-sugar substrates. The transport of the ***protein*** into the periplasmic space is used to study the mechanisms of transport of prosthetic group-contg. enzymes into the periplasmic space. The gfo gene encoding the enzyme is cloned and expressed in Escherichia coli. The structure of the NADP-binding site is studied by site-directed mutation.

L11 ANSWER 16 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN
1995:758786 Document No. 123:138131 Shapable electrically conductive polymer film having adsorbed ***protein*** . Wernet, Wolfgang; Khan, Golam F. (Japat Ltd., Switz.). Eur. Pat. Appl. EP 658906 A2 19950621, 32 pp. DESIGNATED STATES: R: BE, CH, DE, ES, FR, GB, IT, LI, NL, SE. (English). CODEN: EPXXDW. APPLICATION: EP 1994-810713 19941209. PRIORITY: GB 1993-25946 19931218.
AB A shapable elec. conductive polymer film comprises (1) a film contg. (a)

.gtoreq.1 polyheteroarom. compd. or aniline in oxidized, polycationic form and (b) .gtoreq.1 polyanion of a film-forming thermoplastic polymer contg. COSO3 and/or CO(CnH2n)SO3 groups in repeating structural units, where the group (CnH2n) is linear or branched C2-12 alkylene contg. 2-5 C atoms in the main chain, the alkylene being unsubstituted or substituted by C1-4 alkoxy; and (2) a ***protein*** adsorbed on the film. This film can be used in biosensors, bioreactors, and immunosensors.

L11 ANSWER 17 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN
1994:574230 Document No. 121:174230 A method for the determination of fructose using a single enzyme: production and properties of ***fructose*** ***dehydrogenase*** from Gluconobacter industrius. Prado, Fernando Eduardo; Sampietro, Antonio Rodolfo (Fac. Bioquim. Quim. Farm., Univ. Nac. Tucuman, San Miguel de Tucuman, 4000, Argent.). Biotechnology and Applied Biochemistry, 19(3), 361-8 (English) 1994. CODEN: BABIEC. ISSN: 0885-4513.
AB A simple method for the prodn., solubilization and purifn. of ***fructose*** ***dehydrogenase*** from Gluconobacter industrius has been developed. G. industrius was grown in a liq. medium with sucrose. The enzyme was solubilized using Triton X-100, digitonin and KCl. The solubilized enzyme shows one ***protein*** band on SDS/PAGE and on isoelec. focusing indicates a pI of 4.55. The purified ***fructose*** ***dehydrogenase*** is a dimer in the native form, with an Mr of 130,000 for the whole enzyme and 63,000 for each subunit resp. This enzyme prepn. is specific for free fructose, and ferricyanide is the sole electron acceptor. The optimum pH was 4.5, and the Km was 6.9 .times. 10-3 M. The enzyme is stable from pH 3 to 5.5 and retains activity during 10 mo at 4-6.degree.C. The enzyme was inhibited by Hg2+, Ag+ and NaN3. This enzyme was used for the fructose detn. of several natural products with good results.

L11 ANSWER 18 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN
1994:46387 Document No. 120:46387 Design of molecular information system. Aizawa, M. (Dep. Bioeng., Tokyo Inst. Technol., Yokohama, 227, Japan). New Funct. Mater., Volume B, 75-82. Editor(s): Tsuruta, Teiji. Elsevier: Amsterdam, Neth. (English) 1993. CODEN: 59NKAJ.
AB Elec. stimulated release of neurotransmitters such as glutamic acid has been demonstrated on the model of a presynaptic membrane of a neuron with a microchip of conducting polymer membrane. Polypyrrole was electrochem. deposited in thin membrane form on the terminal of a platinum microfiber to form a microchip. Glutamic acid was stored in the membrane matrix by electrochem. doping, whereas it was released on call by elec. pulse stimulation. Elec. activation and inactivation of enzyme activity has been performed with a conducting polymer membrane-bound enzyme in an analogous manner as a receptor ***protein*** is activated by the corresponding mol. information. ***Fructose*** ***dehydrogenase*** was immobilized in monolayer on the platinum electrode surface. Polypyrrole was deposited on the vacant surface of the electrode as mol. wire to connect the enzyme with the electrode. The polypyrrole-interfaced dehydrogenase showed potential-dependent activity above its redox potential.

L11 ANSWER 19 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN
1993:187260 Document No. 118:187260 Towards mediator design: characterization of tris-(4,4'-substituted-2,2'-bipyridine) complexes of

iron(II), ruthenium(II) and osmium(II) as mediators for glucose oxidase of Aspergillus niger and other redox proteins. Zakeeruddin, S. M.; Fraser, D. M.; Nazeeruddin, M. K.; Graetzel, M. (Inst. Chim. Phys. II, Ec. Polytech. Fed. Lausanne, Lausanne, CH-1015, Switz.). Journal of Electroanalytical Chemistry, 337(1-2), 253-83 (English) 1992. CODEN: JECHES.

AB A range of novel tris-(4,4'-substituted-2,2'-bipyridine) complexes of the group VIII metals iron(II), ruthenium(II) and osmium(II) have been synthesized and characterized electrochem. with respect to their ability to act as electron-transfer mediators for redox enzymes, notably glucose oxidase (GOD, EC 1.1.3.4) of Aspergillus niger. The complexes present a wide range of redox potentials (-325 to +610 mV in phosphate-buffered saline soln. relative to the std. calomel electrode) and high second-order rate consts. kmed for electron transfer from reduced glucose oxidase (to approx. 107 M-1 s-1) as detd. by an electrochem. method. These rate consts. were treated following Marcus theory to yield a value for the reorganization energy .lambda. for the mediation reaction of 0.70 eV. Complexes bearing amino substituents gave particularly high rate consts. with GOD, suggesting a specific interaction with the enzyme's active site. The tris-(4,4'-dimethoxy-2,2'-bipyridine) complex of osmium is a versatile mediator, presenting high rate consts. Kmed for a variety of unrelated redox proteins. Enzyme electrodes, formed by coadsorption of a mediator with a redox enzyme on the surface of graphite rods, responded chronoamperometrically to the addn. of substrate to the surrounding phosphate-buffered saline. The family of mediators may be useful for redox ***protein*** electron-transfer studies and for application in amperometric biosensors. By appropriate choice of the 4,4' substituent, the physicochem. and electrochem. properties of a complex could be tuned to suit the intended redox ***protein*** .

L11 ANSWER 20 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN

1992:12431 Document No. 116:12431 Electrochemical behavior of monolayer quinoprotein adsorbed on the electrode surface. Khan, Golam Faruque; Shinohara, Hiroaki; Ikariyama, Yoshihito; Aizawa, Masuo (Fac. Biosci. Biotechnol., Tokyo Inst. Technol., Yokohama, 227, Japan). Journal of Electroanalytical Chemistry and Interfacial Electrochemistry, 315(1-2), 263-73 (English) 1991. CODEN: JEIEBC. ISSN: 0022-0728.

AB Direct electron transfer between a monolayer of quinoprotein oxidoreductase, ***fructose*** ***dehydrogenase*** (FDH) and various electrodes such as Pt, Au and glassy carbon (GC) was investigated. To achieve direct and reversible electron transfer, monolayer FDH was prepd. on these electrodes by a voltage-assisted adsorption method. The monolayer prepn. depended on the applied potential, the adsorption time, the pH of the incubation medium and the ***protein*** concn. The electron transfer between adsorbed FDH and the electrode proceeded directly and reversibly at all the electrodes. The redox potentials of FDH at pH 4.5 were 80, 80 and 40 mV (vs. Ag/AgCl) for the Pt, Au and GC electrodes, resp. This electrochem. property depended on the electrode material, i.e. one electrode retained the enzyme with more enzyme activity than did the others, while another retained the enzyme with more electrochem. activity than the others. This suggests that partial orientation is possible by a particular electrode material. The mode of orientation on each metallic surface was different from that on the carbon electrode: the former provided more rapid electron transfer with lower enzyme activity, whereas the latter produced slower electron transfer with higher dehydrogenase activity. In addn., an attempt was made to det. fructose with a FDH-adsorbed electrode by detecting the direct electron

transfer from the enzyme to the electrode.

L11 ANSWER 21 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN
1991:553751 Document No. 115:153751 Incorporation and activation of a membrane-bound enzyme in bilayers of liposomes. Kheirolomoom, Azadeh; Miyazato, Kazumi; Katoh, Shigeo; Sada, Eizo (Chem. Eng. Dep., Kyoto Univ., Kyoto, 606, Japan). Applied Microbiology and Biotechnology, 35(4), 521-4 (English) 1991. CODEN: AMBIDG. ISSN: 0175-7598.
AB The effects of lipid compn. and fluidity of lipid bilayers on the incorporation and activation of membrane-bound D- ***fructose*** ***dehydrogenase*** of Gluconobacter are described. The incorporation of the enzyme into bilayers of small unilamellar vesicles (SUV) made of several phospholipids resulted in enzyme activation with magnitudes higher than that obsd. in the presence of Triton X-100, indicating that this higher activation was due to lipid- ***protein*** interaction. The activity was highest in the presence of SUV formed by the addn. of 10% DL-.alpha.-dipalmitoylphosphatidylethanolamine to L-.alpha.-dimirystoylphosphatidylcholine, which resulted in 8-fold higher activation compared with that of the enzyme in its free state. This activation did not appear to be due to the degree of incorporation of the enzyme, indicating that incorporation is distinct from the activation event. Thus, it is probably the lipid environment that leads to higher activation of the enzyme. A break in the Arrhenius plot of the activity of the membrane-bound enzyme at temps. close to the phase transition of the phospholipid implied that changes in the phys. state of the lipid bilayer influence the enzyme activity. Furthermore, immobilization of D- ***fructose*** ***dehydrogenase*** , previously adsorbed to SUV, on urethane prepolymer also resulted in .apprx.8-fold higher activation than that of the free enzyme.

L11 ANSWER 22 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN
1990:234025 Document No. 112:234025 Isolation of ***fructose*** ***dehydrogenase*** employing flocculating agent. Asano, Shigeki; Watanabe, Haruo (Toyobo Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 01320984 A 19891227 Heisei, 3 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1988-153313 19880620.
AB A method for isolating fructose reductase (I) from I-producing bacteria comprises : (1) disruption of the bacteria; (2) addn. of a flocculating agent prior to collecting the cell membrane fraction; and (3) solubilization and isolation I from the cell membrane fraction. The method is useful for producing I in com. amt., and it does not required further ultracentrifugation. Thus, Gluconobacter industrius 1 kg collected from a 140-L culture broth was disrupted, aggregated with polyethyleneimine 5 g, filtered, solubilized with triton X-100, and filtered to obtain an I-contg. soln (yield, 81%) having a 53.4 units/mg ***protein*** . By conventional method, an I-contg. soln. having 6.2 unit/mg ***protein*** was obtained.

L11 ANSWER 23 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN
1982:487845 Document No. 97:87845 D-Fractose:ferricytochrome oxidoreductase and its production. (Ameyama, Minoru, Japan). Jpn. Kokai Tokkyo Koho JP 57063085 A 19820416 Showa, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1980-139165 19801004.
AB A new type of ***fructose*** ***dehydrogenase*** (I) was sepd. in 22% yield (.apprx.172-fold purifn.) from homogenates of Gluconobacter industrius. French press treatment was applied to cells grown at 30.degree. for 20-24 h in a medium contg. glycerol 0.4, Na glutamate 0.6,

KH2PO4 0.5, K2HPO4 0.5, MgSO4.7H2O 0.02, FeSO4.7H2O 0.001, NaCl 0.001, MnSO4.7H2O 0.0017, and thiamine-HCl 0.04, nicotinic acid 0.04, and pantothenic acid 0.04 mg%. The cell ext. was dild. in McIlwaine buffer contg. Triton X-100 and 2-mercaptoethanol, clarified by centrifugation, and chromatographed on a DEAE-cellulose column. The active fractions of the eluate were pooled, concd., and chromatographed on a hydroxyapatite column. Active eluate was dehydrated with polyethylene glycol 6000 and the polyethylene glycol was removed by dialysis to give 10 mg purified I. The purified I had a temp. optimum of 20-25.degree., a broad pH optimum (3.5-7), was inhibited by such heavy metal ions as Mg+, Ag+, and Pb2+, was stabilized by such surfactants as Triton X-100 and cholic acid, had a mol. wt. of .apprx.140,000 (3 subunits with mol. wts. of 67,000, 50,000, and 19,700), a Km of 10-2M, a sedimentation const. of 5.8 S, absorption bands in the reduced state at 550-558, 528, and 417 nm, and a characteristic band in the oxidized state at 409 nm. The amino acid compn. of the ***protein*** moiety was detd.

L11 ANSWER 24 OF 24 CAPLUS COPYRIGHT 2007 ACS on STN
1981:134722 Document No. 94:134722 D- ***Fructose*** ***dehydrogenase*** of Gluconobacter industrius: purification, characterization, and application to enzymic microdetermination of D-fructose. Ameyama, Minoru; Shinagawa, Emiko; Matsushita, Kazunobu; Adachi, Osao (Fac. Agric., Yamaguchi Univ., Yamaguchi, 753, Japan). Journal of Bacteriology, 145(2), 814-23 (English) 1981. CODEN: JOBAAY. ISSN: 0021-9193.

AB D- ***Fructose*** ***dehydrogenase*** (I) was solubilized and purified from the membrane fraction of glycerol-grown G. industrius IFO 3260. Purified I was tightly bound to a c-type cytochrome and another ***peptide*** existing as a dehydrogenase-cytochrome complex. I was homogeneous in anal. ultracentrifugation as well as gel filtration. The mol. wt. of the I complex was .apprx.140,000, and SDS-polyacrylamide gel electrophoresis showed the presence of 3 components having mol. wts. of 67,000 (the enzyme ***protein***), 50,800 (cytochrome c), and 19,700 (unknown function). Only D-fructose was readily oxidized by I in the presence of dyes such as ferricyanide, 2,6-dichlorophenolindophenol, or phenazine methosulfate. The optimum pH of D-fructose oxidn. was 4.0. I was stable at pH 4.5-6.0. Stability of purified I was much enhanced by the presence of detergent in the enzyme soln. Removal of detergent from the enzyme soln. facilitated the aggregation of I and caused its inactivation. An apparent Km for D-fructose was 10-2M with purified I. I was a satisfactory reagent for microdetn. of D-fructose.

=> file genbank

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	120.30	186.50
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-27.30	-31.20

FILE 'GENBANK' ENTERED AT 11:04:24 ON 07 JUN 2007

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 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

=> s (fructos##(w)(oxidase or dehydrogenase)) and plant
          9644 FRUCTOS##
        197617 OXIDASE
        170864 DEHYDROGENASE
           646 FRUCTOS##(W)(OXIDASE OR DEHYDROGENASE)
       6199090 PLANT
L12          95 (FRUCTOS##(W)(OXIDASE OR DEHYDROGENASE)) AND PLANT


FILE 'HOME' ENTERED AT 11:24:01 ON 07 JUN 2007

=> file registry

=> s fructose peptide oxidase
          7326 FRUCTOSE
        155769 PEPTIDE
         90082 OXIDASE
L1            0 FRUCTOSE PEPTIDE OXIDASE
                  (FRUCTOSE(W)PEPTIDE(W)OXIDASE)

=> s fructo##(w)oxidase
         20100 FRUCTO##
         90082 OXIDASE
L2            0 FRUCTO##(W)OXIDASE

=> file caplus

=> s fructos##(w)oxidase
         65699 FRUCTOS##
        122924 OXIDASE
L3            4 FRUCTOS##(W)OXIDASE

=> d 1-4 cbib abs

L3   ANSWER 1 OF 4  CAPLUS  COPYRIGHT 2007 ACS on STN
2004:582364   Document No. 142:171950  Enhanced   ***fructose***
      ***oxidase***   activity in a galactose oxidase variant.  Deacon, Sarah
     E.; Mahmoud, Khaled; Spooner, R. Kate; Firbank, Susan J.; Knowles, Peter
     F.; Phillips, Simon E. V.; McPherson, Michael J. (Astbury Centre for
     Structural Molecular Biology, School of Biochemistry and Molecular
     Biology, University of Leeds, Leeds, LS2 9JT, UK).  ChemBioChem, 5(7),
     972-979 (English) 2004.  CODEN: CBCHFX.  ISSN: 1439-4227.  Publisher:
     Wiley-VCH Verlag GmbH & Co. KGaA.
AB   Galactose oxidase (GO; EC 1.1.3.9) catalyzes the oxidn. of a wide range of
     primary alcs. including mono-, oligo- and polysaccharides.  High-resoln.
     structures have been detd. for GO, but no structural information is
     available for the enzyme with bound substrate or inhibitor.  Previously,
     computer-aided docking expts. have been used to develop a plausible model
     for interactions between GO and the D-galactose substrate.  Residues
     implicated in such interactions include Arg330, Gln406, Phe464, Phe194 and
     Trp290.  In the present study we describe an improved expression system
     for recombinant GO in the methylotrophic yeast Pichia pastoris.  We use
     this system to express variant proteins mutated at Arg330 and Phe464 to
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explore the substrate binding model. We also demonstrate that the Arg330 variants display greater ***fructose*** ***oxidase*** activity than does wild-type GO.

L3 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2007 ACS on STN

2003:969428 Document No. 140:2528 Biosensor. Miyamoto, Yoshiko; Yamamoto, Tomohiro; Hasegawa, Miwa; Yoshioka, Toshihiko (Matsushita Electric Industrial Co., Ltd., Japan). Eur. Pat. Appl. EP 1369687 A1 20031210, 16 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK. (English). CODEN: EPXXDW. APPLICATION: EP 2003-253470 20030603. PRIORITY: JP 2002-161740 20020603.

AB In a biosensor comprising an elec. insulating base plate, an electrode system including a working electrode and a counter electrode formed on the base plate, and a reaction layer formed on or in the vicinity of the electrode system, at least a surface of the reaction layer is made porous, so as to provide a biosensor of good response characteristic in which a reaction layer contg. an enzyme dissolves quickly into a small amt. of a sample soln. and the enzyme reaction is effectively utilized. In one embodiment the reaction layer contains the enzyme and an aggregate of fine particles having an av. diam. of between 0.1 aem and 1 aem. The fine particles may be made of a material selected from a polymer compd., ceramic, glass, diamond and carbon.

L3 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2007 ACS on STN

1996:263863 Document No. 125:29082 Molecular genetic studies of the biosynthesis and physiological role of the glucose fructose oxidoreductase from Zymomonas mobilis. Wiegert, Thomas (Inst. Biotechnol., Forschungszent. Juelich G.m.b.H., Juelich, D-52425, Germany). Berichte des Forschungszentrums Juelich, Juel-3149, 1-101 (German) 1995. CODEN: FJBEE5. ISSN: 0366-0885.

AB The physiol. function and properties of the glucose-fructose oxidoreductase of Zymomonas mobilis were investigated. The study confirms the role of the enzyme in the biosynthesis of sorbitol as an osmotic protectant in growth on high-sugar substrates. The transport of the protein into the periplasmic space is used to study the mechanisms of transport of prosthetic group-contg. enzymes into the periplasmic space. The gfo gene encoding the enzyme is cloned and expressed in Escherichia coli. The structure of the NADP-binding site is studied by site-directed mutation.

L3 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2007 ACS on STN

1992:230973 Document No. 116:230973 Molecular interface for an activity controlled enzyme electrode and its application for the determination of fructose. Khan, Golam Faruque; Kobatake, Eiry; Shinohara, Hiroaki; Ikariyama, Yoshihito; Aizawa, Masuo (Fac. Biosci. Biotechnol., Tokyo Inst. Technol., Yokohama, 227, Japan). Analytical Chemistry, 64(11), 1254-8 (English) 1992. CODEN: ANCHAM. ISSN: 0003-2700.

AB A pyrroloquinoline quinone (PQQ) enzyme (fructose dehydrogenase) is electrochem. adsorbed into a monolayer and then immobilized on a platinum electrode surface by electrooxidative polymn. of polypyrrole. The conductive polymer matrix works as an interface that serves as an electron-shuttling medium between the enzyme and the electrode as well as the matrix for enzyme immobilization. The enzyme electrode demonstrates that the PQQ enzyme is rapidly turned over in the conductive material depending on the applied potential; i.e., the activity is electrochem. controllable. In other words, the enzyme in the conductive thin membrane

exhibits a sharp increase in catalytic activity at the redox potential of the enzyme. On the other hand, less efficient electron transfer occurs at conventional electrodes without polypyrrole. Electrode properties are reported when the electrode is applied to the biosensing of D-fructose.

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=> s fructos##(w)(oxidase or dehydrogenase)
         65699 FRUCTOS##
        122924 OXIDASE
        168478 DEHYDROGENASE
L4         164 FRUCTOS##(W)(OXIDASE OR DEHYDROGENASE)

=> s fructos##(w)(oxidase# or dehydrogenase#)
         65699 FRUCTOS##
        125863 OXIDASE#
        171575 DEHYDROGENASE#
L5         166 FRUCTOS##(W)(OXIDASE# OR DEHYDROGENASE#)

=> s l5 and plant
        839934 PLANT
L6           0 L5 AND PLANT

=> s l5 and bluberr###
             4 BLUBERR###
L7           0 L5 AND BLUBERR###

=> d l5 1-20 cbib abs

L5   ANSWER 1 OF 166  CAPLUS  COPYRIGHT 2007 ACS on STN
2007:591931  Agent for use in the case of disorders of blood sugar metabolism,
     including diabetes.  Wyrobnik, Daniel Henry; Wyrobnik, Isaac Harry (Pro
     Natura Gesellschaft fuer Gesunde Ernaehrung m.b.H., Germany).  PCT Int.
     Appl. WO 2007059956 A1 20070531, 58pp.  DESIGNATED STATES: W:  AE, AG, AL,
     AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,
     DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU,
     ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT,
     LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM,
     PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM,
     TN, TR, TT, TZ, UA, UG; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE,
     DK, ES, FI, FR, GA, GB, GR, IE, IS, IT, LU, MC, ML, MR, NE, NL, PT, SE,
     SN, TD, TG, TR.  (English).  CODEN: PIXXD2.  APPLICATION: WO 2006-EP11232
     20061123.  PRIORITY: DE 2005-102005056103 20051123; DE 2005-102005061329
     20051220; DE 2006-102006001017 20060105; US 2006-2006/PV75742D 20060110;
     DE 2006-102006014424 20060327; US 2006-2006/PV831175 20060717.
AB   An agent for use in the case of disorders of blood sugar metab., including
     diabetes, is described, which reduces the glucose content of food and
     other substances with the help of 5-D-  ***fructose***
       ***dehydrogenase***  and glucose isomerase.

L5   ANSWER 2 OF 166  CAPLUS  COPYRIGHT 2007 ACS on STN
2007:564642  5-D-  ***Fructose***     ***dehydrogenase***  , optionally
     combined with other enzymes, for treatment of fructose intolerance.
     Wyrobnik, Daniel Henry; Wyrobnik, Isaac Harry; Silcoff, Elliad Ronen (Pro
     Natura Gesellschaft fuer Gesunde Ernaehrung MbH, Germany).  PCT Int. Appl.
     WO 2007057749 A2 20070524, 39pp.  DESIGNATED STATES: W:  AE, AG, AL, AM,
     AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE,
     DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID,
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IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IS, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2006-IB3223 20061115. PRIORITY: DE 2005-102005055081 20051116; DE 2005-102005056169 20051123; DE 2005-102005060768 20051216; DE 2005-102005060769 20051216; DE 2006-102006000873 20060104; DE 2006-102006000881 20060104; DE 2006-102006001015 20060105; US 2006-2006/PV75741U 20060110; US 2006-2006/PV75742D 20060110; DE 2006-102006012244 20060315; DE 2006-102006013624 20060322; DE 2006-102006014423 20060327; US 2006-2006/PV83105U 20060717; US 2006-2006/PV831174 20060717.

AB The invention discloses an agent for use for the treatment of fructose intolerance and any form of impairment and affliction of health and well being which is caused by the administration of fructose or fructose-contg. foodstuffs or by the release of fructose in the digestive tract of humans or animals from other substances, e.g. sucrose. The agent of the invention comprises 5-D- ***fructose*** ***dehydrogenase*** , optionally in combination with invertase and/or maltase and/or glucose isomerase, which enzyme or combination of enzymes is/are used in the medical field for the first time. Preferably the agent is in the form of a pharmaceutical compn. which is useful for treatment of fructose intolerance.

L5 ANSWER 3 OF 166 CAPLUS COPYRIGHT 2007 ACS on STN

2007:558957 Medium for reduction of usable food calorie content and for therapeutic weight reduction, in particular for use in adiposity (fatty degeneration). (Pro Natura Gesellschaft fuer Gesunde Ernaehrung m.b.H., Germany). Ger. Offen. DE 102006013623 A1 20070524, 11pp. (German). CODEN: GWXXBX. APPLICATION: DE 2006-102006013623 20060322. PRIORITY: DE 2005-102005056170 20051123; DE 2005-102005060767 20051216; DE 2005-102005061330 20051220; DE 2005-102005063194 20051230; DE 2006-102006001016 20060105.

AB A medium/means is described for the redn. of the usable calorie content of the food, which contains a compd., which causes the dehydrogenation from fructose to 5-keto D-fructose. In addn. a combination medium/means is described, which contains glucose isomerase beside the 5-D- ***fructose*** ***dehydrogenase*** also still. These mediums can be used in particular in the therapy of obesity (adiposity).

L5 ANSWER 4 OF 166 CAPLUS COPYRIGHT 2007 ACS on STN

2007:558801 5-D- ***Fructose*** ***dehydrogenase*** and glucose isomerase containing compositions for use in blood sugar metabolism disorders including diabetes. Wyrobnik, Harry; Wyrobnik, Daniel (Pro Natura Gesellschaft fuer Gesunde Ernaehrung m.b.H, Germany). Ger. Offen. DE 102005056103 A1 20070524, 3pp. (German). CODEN: GWXXBX. APPLICATION: DE 2005-102005056103 20051123.

AB The invention concerns the use of 5-D- ***fructose*** ***dehydrogenase***, and glucose isomerase for reducing the glucose content of foods and other substances. The enzymes can be formulated to tablets or capsules; a typical compn. would contain 55 mg 5-D- ***fructose*** ***dehydrogenase*** (1000 U/mg), glucose isomerase (1 GIU/mg) and 155 mg dicalcium phosphate. Immobilized enzymes can also be used. The formulations are administered before meals esp. to diabetes

patients.

L5 ANSWER 5 OF 166 CAPLUS COPYRIGHT 2007 ACS on STN
2007:483129 Document No. 146:437504 Sensor chip and sensor system. Nakamura, Hideaki; Gotoh, Masao; Ishikawa, Tomoko; Karube, Isao; Hosoya, Toshifumi; Kaimori, Shingo; Ichino, Moriyasu (Sumitomo Electric Industries, Ltd., Japan; National Institute of Advanced Industrial Science and Technology). PCT Int. Appl. WO 2007049646 A1 20070503, 18pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IS, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2006-JP321279 20061025. PRIORITY: JP 2005-312326 20051027.

AB Provided are a sensor chip which permits deterioration status of an agent applied on a reacting section of the sensor chip to be detected at the time of measuring concn. of a material to be measured, and a sensor system which can perform accurate measurement while detecting the deterioration status of the agent by using such sensor chip. In the sensor chip, two substrates facing each other and a spacer layer between the substrates are provided, a plurality of reacting sections are provided in the spacer layer, and on the surface of the substrate on the spacer layer side, an electrode system for detection is arranged to expose in the reacting section. The sensor chip is characterized in that the same agent (A) is applied on two or more reacting sections among the reacting sections, and furthermore, on at least one reacting section of the two or more reacting sections, another agent (B) which reacts with the agent (A) is applied. The sensor system is characterized in that the system is provided with a measuring means which compares current values from the sensor chip and each of the two or more reacting sections.

L5 ANSWER 6 OF 166 CAPLUS COPYRIGHT 2007 ACS on STN
2007:427763 08786701n. Fujii, Akira; Shinohara, Hiroaki; Kato, Hirotaka; Sisido, Masahiko (Div. of Chemistry and Biochemistry, Grad. Sch. of Natural Science and Technology, Okayama Univ., 3-1-1 Tsushima-naka, Okayama, 700-8530, Japan). Electrochemistry (Tokyo, Japan), 75(4), 342-344 (English) 2007. CODEN: EECTFA. ISSN: 1344-3542. Publisher: Electrochemical Society of Japan.

AB PQQ-dependent ***fructose*** ***dehydrogenase*** (PQQ-FDH), which is able to transfer electrons to metal electrodes, was immobilized onto an extended gold-gate of a chem. charge-coupled device (chem. CCD) to measure the catalytic electron transfer in the presence of the substrate. Rapid decrease of the output voltage of the FDH-immobilized gold-gate chem. CCD was obsd. by the addn. of fructose and the extent of the decrease depended on the concn. of fructose. Furthermore, the output profile showed substrate-specificity of FDH. These results strongly suggest that enzymic oxidn. of the substrate and the subsequent direct electron transfer from the enzyme to the gold-gate was detected sensitively with the gold-gate chem. CCD. This finding will open a new field of bioelectronic sensors and devices.

L5 ANSWER 7 OF 166 CAPLUS COPYRIGHT 2007 ACS on STN
2007:385975 Fructose/dioxygen biofuel cell based on direct electron

transfer-type bioelectrocatalysis. Kamitaka, Yuji; Tsujimura, Seiya; Setoyama, Norihiko; Kajino, Tsutomu; Kano, Kenji (Division of Applied Life Sciences, Graduate School of Agriculture, Kyoto University, Kyoto, 606-8502, Japan). Physical Chemistry Chemical Physics, 9(15), 1793-1801 (English) 2007. CODEN: PPCPFQ. ISSN: 1463-9076. Publisher: Royal Society of Chemistry.

AB One-compartment biofuel cells without separators have been constructed, in which d- ***fructose*** ***dehydrogenase*** (FDH) from Gluconobacter sp. and laccase from Trametes sp. (TsLAC) work as catalysts of direct electron transfer (DET)-type bioelectrocatalysis in the two-electron oxidn. of d-fructose and four-electron redn. of dioxygen as fuels, resp. FDH adsorbs strongly and stably on Ketjen black (KB) particles that have been modified on carbon papers (CP) and produces the catalytic current with the max. d. of about 4 mA cm-2 without mediators at pH 5. The catalytic wave of the d-fructose oxidn. is controlled by the enzyme kinetics. The location and the shape of the catalytic waves suggest strongly that the electron is directly transferred to the KB particles from the heme c site in FDH, of which the formal potential has been detd. to be 39 mV vs. Ag|AgCl|sat. KCl. Electrochem. of three kinds of multi-copper oxidases has also been investigated and TsLAC has been selected as the best one of the DET-type bioelectrocatalyst for the four-electron redn. of dioxygen in view of the thermodn. and kinetics at pH 5. In the DET-type bioelectrocatalysis, the electron from electrodes seems to be transferred to the type I copper site of multi-copper oxidases. TsLAC adsorbed on carbon aerogel (CG) particles with an av. pore size of 22 nm, that have been modified on CP electrodes, produces the catalytic redn. current of dioxygen with a d. of about 4 mA cm-2, which is governed by the mass transfer of the dissolved dioxygen. The FDH-adsorbed KB-modified CP electrodes and the TsLAC-adsorbed CG-modified CP electrodes have been combined to construct one-compartment biofuel cells without separators. The open-circuit voltage was 790 mV. The max. c.d. of 2.8 mA cm-2 and the max. power d. of 850 .mu.W cm-2 have been achieved at 410 mV of the cell voltage under stirring.

L5 ANSWER 8 OF 166 CAPLUS COPYRIGHT 2007 ACS on STN

2007:291321 Effect of sucralose on invertase-catalyzed sucrose hydrolysis. Tran, Henry H.; Baures, Paul W. (Department of Chemistry and Biochemistry, University of Tulsa, Tulsa, OK, 74104, USA). Abstracts of Papers, 233rd ACS National Meeting, Chicago, IL, United States, March 25-29, 2007, CHED-944. American Chemical Society: Washington, D. C. (English) 2007. CODEN: 69JAUY.

AB The food and beverage industry is increasingly replacing sugar with artificial sweeteners in a range of products traditionally contg. sugar. However, there is ongoing controversy over the supposed health risks of artificial sweeteners. One substance which may be in question is sucralose, a non-caloric sweetener known by the trade name Splenda. It is produced from sucrose in a proprietary process, by which three of sucrose's hydroxyl groups are substituted with chlorine atoms. Splenda is reported by manufacturers as largely excreted by the body and mostly unchanged in its form. However, transformation and absorption regarding the mol. has been reported in vivo. In this study, a coupled enzyme system involving invertase and ***fructose*** ***dehydrogenase*** will be used to monitor the effects of sugar substrates and investigate the possibility of covalent modification or inhibition of sugar binding enzymes by sucralose.

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2007:221257 Document No. 146:333296 High current density bioelectrolysis of D-fructose at ***fructose*** ***dehydrogenase*** -adsorbed and Ketjen black-modified electrodes without a mediator. Kamitaka, Yuji; Tsujimura, Seiya; Kano, Kenji (Division of Applied Life Sciences, Graduate School of Agriculture, Kyoto University, Sakyo-ku, Kyoto, 606-8502, Japan). Chemistry Letters, 36(2), 218-219 (English) 2007. CODEN: CMLTAG. ISSN: 0366-7022. Publisher: Chemical Society of Japan.

AB D- ***Fructose*** ***dehydrogenase*** (FDH) has been irreversibly adsorbed without loss of the enzymic activity on Ketjen black (KB)-modified glassy carbon electrodes, although the adsorption rate is very slow probably owing to the microstructure of KB. The FDH-adsorbed electrode produced the enzyme-kinetic-controlled catalytic oxidn. wave of D-fructose at current densities of as high as 10 mA cm-2 without a mediator, in which the electron in FDH seems to be directly transferred to the electrode via the heme c site. No hindrance was obsd. in the mass transfer of D-fructose to KB-modified electrodes.

L5 ANSWER 10 OF 166 CAPLUS COPYRIGHT 2007 ACS on STN

2007:185752 Document No. 146:319962 Employing oxidoreductase in electrocatalysis. Development of novel energy conversion devices such as sugar-oxygen fuel cell, etc.. Tsujimura, Seiya (Grad. Sch. Agric., Kyoto University, Japan). Kagaku to Seibutsu, 45(1), 7-9 (Japanese) 2007. CODEN: KASEAA. ISSN: 0453-073X. Publisher: Gakkai Shuppan Senta.

AB A review on researches on utilization of oxidoreductase for electrode catalysts, esp., fuel cells. Sugar-oxygen fuel cell employs fructose as a fuel, and ***fructose*** ***dehydrogenase*** and laccase as a fuel and an oxygen electrode, resp.

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2006:1182211 Detection of direct electron transfer between redox enzyme and gold gate by using chemical CCD. Fujii, Akira; Shinohara, Hiroaki; Kato, Hirotaka (Graduate School of Natural Science and Technology, Okayama University, 3-1-1 Tsushima-naka, Okayama, 700-8530, Japan). Chemical Sensors, 22(Suppl. B), 19-21 (Japanese) 2006. CODEN: KAGSEU. Publisher: Denki Kagakkai Kagaku Sensa Kenkyukai.

AB It is found that the electron transfer between redox compds. in measuring soln. and the gold thin film covered on the insulator gate was detectable very sensitively with the Chem. CCD. Therefore, in this study the PQQ-dependent ***fructose*** ***dehydrogenase*** (PQQ-FDH), which was able to transfer electron to metal electrode, was immobilized onto the gold-gate of the Chem. CCD to measure the catalytic electron transfer in the presence of the substrate. Decrease of Chem. CCD output was obsd. by fructose addn. and the output change showed substrate specificity. The result certainly demonstrated that the enzyme oxidn. of the substrate and the electron transfer from the enzyme to the gold-gate could be detected with the gold-gate Chem. CCD. The output change of the FDH-immobilized gold-gate Chem. CCD depended on the concn. of fructose and the Michaelis-Menten curve was obtained. From these results, we would like to conclude the Chem. CCD with the gold gate was very effective for measurement of direct electron transfer between adsorbed redox enzyme and gold thin film on the insulator gate surface. This study might develop new field of bioelectronics sensors and bioelectronics devices.

L5 ANSWER 12 OF 166 CAPLUS COPYRIGHT 2007 ACS on STN

2006:1167290 Electrostatic assemblies for bioelectrocatalytic and bioelectronic applications. Dominguez, Elena; Suarez, Guillaume; Narvaez, Arantzazu (Departmento de Quimica Analitica, Facultad de Farmacia,

Universidad de Alcala, Madrid, 22871, Spain). Electroanalysis, 18(19-20), 1871-1878 (English) 2006. CODEN: ELANEU. ISSN: 1040-0397. Publisher: Wiley-VCH Verlag GmbH & Co. KGaA.

AB This work extensively covers the use of layer-by-layer (LbL) assembly of polyelectrolytes for the transduction of catalytic and affinity events. It is demonstrated that by controlling the charge of polyelectrolytes, electrostatic interactions drive then the LbL construction of supramol. architectures with improved performance. Particularly, by adequately charging an osmium based redox polymer, a multicofactor protein (***fructose*** ***dehydrogenase***) may be deposited in a favored orientation resulting in a more efficient electrochem. communication. A H2O2 transducing interface is created by the enhancement of electrostatic interactions between the electrochem. and catalytic layer. Further assemblies include the coupling of an oxidase (alc. oxidase) with the H2O2 transducing interface resulting in a linear increase of current with the no. of AOX layers. Finally, affinity assemblies are demonstrated by deposition of anti Dexamethasone antibodies. Faraday currents are then obtained by the electrochem. communication between the HRP labeled immunoconjugate and the electrochem. interface in a heterogeneous competitive assay format.

L5 ANSWER 13 OF 166 CAPLUS COPYRIGHT 2007 ACS on STN

2006:622256 Document No. 145:265691 A carboxyalkanethiol monolayer modified electrode for blocking of ascorbic acid oxidation and its application to a biosensor. Kubo, Izumi; Nakane, Yuko; Maehara, Nobuyoshi (Faculty of Engineering, Soka University, Hachioji, Tokyo, 192-8577, Japan). Electrochimica Acta, 51(24), 5163-5168 (English) 2006. CODEN: ELCAAV. ISSN: 0013-4686. Publisher: Elsevier B.V..

AB Upon the application of amperometric biosensor to the biol. fluid, ascorbic acid interferes the amperometric detn. of analytes, because the oxidative potential of ascorbic acid is lower than that of electro active substances such as H2O2 produced by the enzymic reaction. In this study we propose a method to block ascorbic acid based on the electrostatic interaction with self-assembled monolayer (SAM) and its application of the surface modified electrode to biosensor. In order to form SAM on the gold electrode with carboxyl group, 7-carboxy-heptanethiol (7-CHT) was used. The 7-CHT modified electrode did not show anodic response to ascorbic acid, but oxidized phenanthroline cobalt complex [Co(phen)32+], which can be used as a mediator of biosensor. Thus, the 7CHT-modified electrode was applied to biosensor mediated with Co(phen)32+. ***Fructose*** ***dehydrogenase*** (FDH) was immobilized to the 7-CHT modified electrode. Fructose was detd. selectively with the FDH/7-CHT modified electrode at the range of 0.2-2 mM.

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2006:563269 Document No. 145:187257 A new amperometric biosensor for fructose determination based on epoxy-graphite-TTF-TCNQ-FDH-biocomposite. Montanez-Soto, Jose Luis; Alegret, Salvador; Salazar-Montoya, Juan Alfredo; Ramos-Ramirez, Emma Gloria (Department of Biotechnology and Bioengineering, CINVESTAV-IPN, Mexico, DF, C.P. 07300, Mex.). European Food Research and Technology, 223(3), 379-386 (English) 2006. CODEN: EFRTFO. ISSN: 1438-2377. Publisher: Springer GmbH.

AB In this work a novel amperometric biosensor for fructose detn. in solns. was developed. The device was constructed by the incorporation of a tetrathiofulvalene-tetracyanoquinodimethane org. conducting salt and ***fructose*** ***dehydrogenase*** enzyme, include in a polymeric matrix of epoxy resin and graphite powder. Because of the

electrocatalytic function of the salt, the direct transfer of the electron between the reduced prosthetic group (PQQH2) of the enzyme and the transducing material, was verified at a low working potential (150 mV vs. Ag/AgCl), where the interfering reactions were minimized. The response time at 90% of the steady state value was less than 20 s. The current response was directly proportional to the D-fructose concn. from 0.01 to 0.3 mmol/l with a detection limit of 0.005 mmol/l (signal/noise of 3) and a sensitivity of 1.9985 .mu.A/mmol. The biosensor sensitivity diminishes when its surface is not polished between successive detns., and remains const. (rsd=1.85, n=10) when the surface is polished between detns. The effects of temp. and pH on the biosensor response were studied and analyzed; also the properties of the enzyme (Kmap, Imax, Q10) were determinate in this work. The biosensor was used to det. fructose in high fructose syrups and there were not significant differences between these results and those obtained by HPLC (p.ltoreq.0.05). During 4 mo, in intermittent detns. the biosensor kept 100% of its original sensitivity and after 18 mo stored at 4.degree.C, it only lost 32% of its sensitivity. The simplicity, low working potential, high stability and good performance of this biosensor shows a great potential for its use in the fructose detn.

L5 ANSWER 15 OF 166 CAPLUS COPYRIGHT 2007 ACS on STN

2006:250306 Development of carbohydrate bioanodes. Ansari, Yasmin A.; Minteer, Shelley D. (Department of Chemistry, Saint Louis University, St. Louis, MO, 63103, USA). Abstracts of Papers, 231st ACS National Meeting, Atlanta, GA, United States, March 26-30, 2006, PMSE-237. American Chemical Society: Washington, D. C. (English) 2006. CODEN: 69HYEC.

AB Many studies have been done to develop different kinds of biofuel cells to harness energy from a variety of sources. In this research, fructose and glucose-based biofuel cells have been developed. Fructose and glucose are byproducts of sucrose and considered simple sugars. The bioanode comprises half of a biofuel cell and is responsible for oxidizing the fuel. A carbon cloth bioanode has been electro-polymd. in a soln. of methylene green to form an electro-catalyst layer. The electro-polymd. bioanodes were tested by coating with different vols. of ***fructose*** ***dehydrogenase*** /TBAB modified Nafion- solns. and glucose dehydrogenase/TBAB modified Nafion- solns. It has been found that 42 .mu.L of a ***fructose*** ***dehydrogenase*** /TBAB modified Nafion" soln. per cm2 of bioanode produces the max. open circuit potential 0.78 V, max. power densities 2.40 mW/cm2 and max. current 6.90 mA/ cm2 compared to other vols. of ***fructose*** ***dehydrogenase*** /TBAB modified Nafion" soln. on fructose bioanode. And 46 .mu.L of a glucose dehydrogenase/TBAB modified Nafion" soln. per cm2 of bioanode produces max. open circuit potential 0.83 V, max. power densities 1.27 mW/cm2 and max. current 3.94 mA/ cm2 max. current compared to other vols. of glucose dehydrogenase/TBAB modified Nafion" soln. on glucose bioanode.

L5 ANSWER 16 OF 166 CAPLUS COPYRIGHT 2007 ACS on STN

2006:241500 Document No. 145:457488 Development of carbohydrate bioanodes. Ansari, Yasmin A.; Minteer, Shelley D. (Department of Chemistry, Saint Louis University, St. Louis, MO, 63103, USA). PMSE Preprints, 94, 375-376 (English) 2006. CODEN: PPMRA9. ISSN: 1550-6703. Publisher: American Chemical Society.

AB Fructose and glucose biofuel cells were developed by immobilizing ***fructose*** ***dehydrogenase*** (FDH) or glucose dehydrogenase (GDH) in tetrabutylammonium-bromide (TBAB) treated Nafion membranes. The fructose biofuel cell provided optimal current densities of 6.90 mA/cm2

and power densities of 2.40 mW/cm2 for 42 .mu.L of FDH/TBAB modified Nafion soln. cast on a bioanode. The glucose biofuel cell provided optimal current densities of 3.94 mA/cm2 and power densities of 1.27 mW/cm2 for 46 .mu.L of GDH/TBAB modified Nafion soluton cast on a bioanode.

L5 ANSWER 17 OF 166 CAPLUS COPYRIGHT 2007 ACS on STN

2006:116682 Document No. 144:187584 Reagent for quantitative detection of semen fructose by enzymic reaction. Fu, Jianhua; Liu, Yu; Hu, Jiachun; He, Lin; He, Xiaohong (Shenzhen Huakang Biomedical Engineering Co., Ltd., Peop. Rep. China). Faming Zhuanli Shenqing Gongkai Shuomingshu CN 1595153 A 20050316, 8 pp. (Chinese). CODEN: CNXXEV. APPLICATION: CN 2010-40245 20040714.

AB The reagent contains buffer, developer, enzyme-protective soln., std. and stop soln. The enzyme-protective soln. is ***fructose*** ***dehydrogenase*** 3000-8000U/L-contg. freeze dried powder or ***fructose*** ***dehydrogenase*** -free soln. The buffer is antiseptic-contg. citric acid buffer. The developer is 4-fluoro-3-nitrobenzotrifluoride (NBT) 0.01-0.1%-, p-iodonitrotetrazolium violet (INT) 0.01-0.1%- and 4-amidinophenylmethanesulfonyl fluoride hydrochloride (PMS) 0.2-0.8%-contg. deionized water soln. The stop soln. is dild. sulfuric acid soln.

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2005:1224923 Development of Carbohydrate-based Biofuel Cells. Ansari, Yasmine; Minteer, Shelley D. (Department of Chemistry, Saint Louis University, St. Louis, MO, 63103, USA). Abstracts, 57th Southeast/61st Southwest Joint Regional Meeting of the American Chemical Society, Memphis, TN, United States, November 1-4, NOV04-232. American Chemical Society: Washington, D. C. (English) 2005. CODEN: 69HOKM.

AB Many studies have been done to develop different kinds of biofuel cells to harness energy from a variety of sources. In this paper, fructose and glucose-based biofuel cells have been developed. Fructose and glucose are a byproducts of the breakdown of sucrose and considered simple sugars. The bioanode comprises half of a biofuel cell and is responsible for oxidizing the fuel. Carbon cloth bioanodes have been electro-polymd. in a soln. of methylene green to form an electro catalyst layer. The electro-polymd. bioanodes were tested by coating the electrode with different vols. of a mixt. of ***fructose*** ***dehydrogenase*** and tetrabutylammonium bromide (TBAB) modified Nafiona suspension or a mixt. of glucose dehydrogenase and TBAB modified Nafiona suspension. It has been found that 42.mu.l of a ***fructose*** ***dehydrogenase*** /TBAB modified Nafiona suspension per cm2 of bioanode and 46.mu.l of a glucose dehydrogenase/TBAB modified Nafiona soln. per cm2 of bioanode produces max. current and power densities as compared to other vols. on bioanodes.

L5 ANSWER 19 OF 166 CAPLUS COPYRIGHT 2007 ACS on STN

2005:595158 Document No. 143:304675 Development of a rapid, quantitative glucosyltransferase assay based on a screen-printed fructose enzyme electrode and application to optimization studies on gtfD expression in recombinant Escherichia coli. Kadow, S.; Betiku, E.; Rinas, U.; Bilitewski, U. (Department of Natural Product Biology, National Research Centre for Biotechnology (GBF), Braunschweig, D-38124, Germany). Biotechnology and Bioengineering, 91(2), 154-161 (English) 2005. CODEN: BIBIAU. ISSN: 0006-3592. Publisher: John Wiley & Sons, Inc..

AB A biosensor for fructose detn. was used as basis of an assay for the detn.

of glucosyltransferase (GTF) activities and applied to monitoring recombinant enzyme prodn. GTFs catalyze the synthesis of glucans from sucrose leading to the release of fructose. Specific fructose detns. in the .mu.M concn. range were achieved with a fructose electrode based on ***fructose*** ***dehydrogenase*** , which was immobilized on a screen-printed plantinum electrode. This electrode was used as basis of the new assay for GTF activity detns. Depending on the amt. of enzyme, the assay was completed within 15-30 min compared to 1-2 h for the traditional photometric assay. From the amt. of fructose released in a given reaction time, GTF activities were detd. down to approx. 20 U/L. Even unpurified samples from a recombinant GTF-S prodn. process could be analyzed without any problems, and a good correlation was obtained to data obtained from the photometric assay. Anal. of samples from cultures of various rGTF-S-producing recombinant E. coli strains grown on different media with SDS-PAGE and with the new assay identified the same strain and culture medium as optimum for recombinant GTF-S prodn.

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2005:409773 Document No. 142:444328 Biosensor with inorganic gel layer for preventing natural oxidation of mediator, and its production method. Yamaoka, Hideaki; Tsujimoto, Tomomichi (Arkray, Inc., Japan). PCT Int. Appl. WO 2005043146 A1 20050512, 43 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2004-JP16085 20041029. PRIORITY: JP 2003-371198 20031030.

AB A biosensor is provided, with which an influence of oxygen to a mediator is avoided, and a measurement object in a sample soln. is rapidly and conveniently measured with high accuracy. The biosensor is produced by providing a baseplate possessing an electrode, applying a solvent contg. a mediator (e.g., potassium ferricyanide, cytochrome, PQQ, NAD+, NADP+, copper complex, ruthenium complex, osmium complex, ferrocene, phenazine methosulfate, indophenol, methylene blue, p-benzoquinone, potassium .beta.-naphthoquinone-4-sulfonate, cytochrome C, cytochrome b), a surfactant (e.g., alkylaminocarboxylate, carboxybetaine, sulfobetaine, phosphobetaine), a buffer agent (e.g., amine-type buffer, carboxy group-contg. buffer) and a layered inorg. compd. (e.g., swellable layered clay mineral) onto the electrode surface to form an inorg. gel layer for preventing a natural oxidn. of the mediator, and furthermore, forming an enzyme reagent layer contg. an oxidoreductase (e.g, glucose oxidase, pyranose oxidase, glucose dehydrogenase, lactate dehydrogenase, lactate oxidase, fructose dehydrogeanse, galactose oxidase, cholesterol oxidase, cholesterol dehydrogenase, alc. oxidase, alc. dehydrogenase, pyruvate oxidase, glucose 6-phosphate dehydrogenase, acyl-CoA oxidase, choline oxidase, amino acid dehydrogenase, formate dehydrogenase, glycerol dehydrogenase, 4-hydroxybenzoate 3-hydroxylase, malate dehydrogenase, sarcosine oxidase, uricase) on the inorg. gel layer. With this biosensor, the mediator reduced by a reaction of the measurement object with the oxidoreductase is electrochem. measured without being re-oxidized with dissolved oxygen or else due to the inorg. gel layer. Diagrams describing the sensor assembly are given.